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TRANSACTIONS

OF THE

WISCONSIN

STATE AGRICULTURAL SOCIETY

INCLUDING PROCEEDINGS

OF THE

STATE AGRICULTURAL CONVENTION,

Held in February, 1880.

A SUMMARY OF LOCAL CONVENTIONS AND PRACTICAL AND USEFUL PAPERS.

VOL. XVIII.— 1879-80.

PREPARED BY

GEO. E. BRYANT, SECRETARY.

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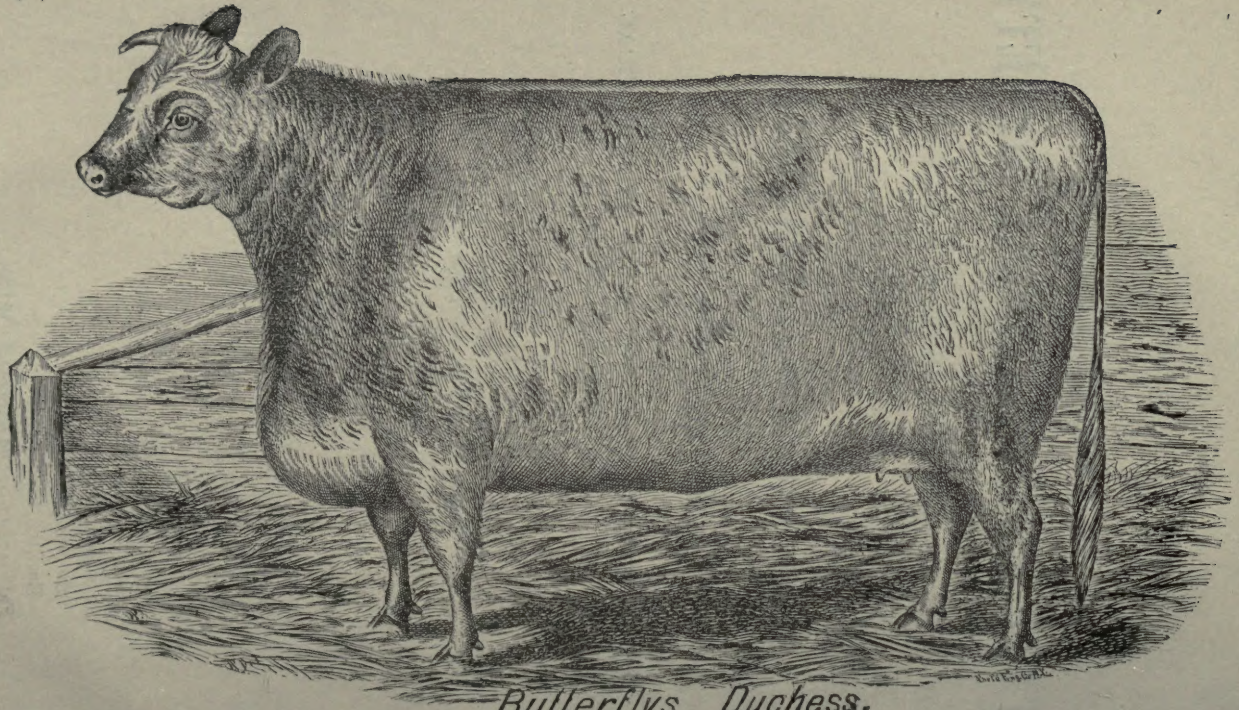

Butterflys Duchess.

TABLE OF CONTENTS.

I. CONSTITUTION vi

II. BY-LAWS viii

III. LIFE MEMBERS xii

IV. OFFICERS OF SOCIETY xix

V. SECRETARY'S ANNUAL REPORT xxi

VI. PROCEEDINGS 1–17

Executive Board meetings 1–4

Society meeting 5–6

Treasurer's report 6–17

VII. EXHIBITION OF 1879 18–48

Opening address of President Fratt 18–23

Premiums awarded 24–48

VIII. REPORTS OF SUPERINTENDENTS 49–63

Report of Hon. W. D. Bacon, Superintendent of Department of Poultry 49

Report of Dr. C. L. Martin, Superintendent of Department of Agriculture 50

Report of Hon. W. W. Field, Superintendent of Department of Fine Arts 51

Report of Hon. H. A. Tenney, Acting Superintendent of Machinery Department 52–63

IX. AGRICULTURAL CONVENTION 64–340

Address by President Fratt 64–70

Discussion of the President's address 70–87

Fire Blight 88–93

Straw 94–98

Discussion of a paper read by J. M. Smith, President of State Horticultural Society, upon "Elements of Success in Gardening" 99–110

Abuse of natural and mistakes of artificial land drainage, and the effect on the growth of vegetation, by W. J. Burdick, of Hubbelton, Wis 111–129

Fall or Spring Plowing for Corn 130–131

Witch or Quack Grass 132–134

Canada Thistles 135

IX. AGRICULTURAL CONVENTION — continued.
Clearing off Timber Land, by Prof. J. W. Wood, Baraboo 136–143
Raspberries 144–145
Protection of the Grape 146
Fruit Trees 147–152
Sugar from Amber Cane, by A. Davis, of Galesville 153–158
Discussion of above Paper 159–169
Errors in Farm Dairying — Their Remedy, by F. Curtis, of Rocky Run 165–173
Discussion of above Paper 174–180
Oleomargarine 178–179
Lactometer 180
Short-Horn vs. Jersey Cows 181
Sheep Husbandry vs. The Dog Tax 182–186
How to Improve a "Run-Down Farm" 187–194
Fish as Manure 181,194
The Fallacy of Farmers Traveling in Old Ruts, by Hon. Hiram Smith, Sheboygan Falls 195–197
Stables, and how to build them 198–201
Short-Horned Cattle, by Col. J. W. Judy, Tallula, Illinois 202–217
Should Dairymen change to Beef Raising? 210–214
Fat Sheep 215–216
A Good Cow 217
How we Farmed in Wisconsin Fifty Years ago, by Hon. Sat. Clark, of Horicon 218–223
Henry Clay pigs 219–221
Poor Schools 223
After the Seed Time the Harvest, by Mrs. A. A. Arnold, Galesville 224–229
Culture on the Farm, by Miss Kate Rhodes, Galesville 230–237
Discussion of the Ladies' Papers 238–246
How to Prune Rogers Hybrid 247–250
Planting Apple Trees where Old Ones have Died 251–253
Mulching Strawberries 254–255
Crescent Seedling 256
Taxation, by Rev. Geo. E. Gordon, of Milwaukee 257–280
Discussion of Mr. Gordon's paper 281–288
Pruning and Grafting 289, 290, 301–314
Devon Cattle, by Dr. E. A. Woodward, Sun Prairie 291–299
Ayrshire Cows 300–301
How to Keep up the Fertility of the Soil 315–322
Wild Oats vs. Clover Seed 323
The Experimental Farm 324–333
Clawson Wheat 325
Fultz Wheat 326

IX. AGRICULTURAL CONVENTION — continued.
White Schonen Oats 328
Snow Flake Potatoes..... 329
Wire Fences..... 334–339

X. AGRICULTURAL CONVENTION AT GALESVILLE, WISCONSIN 341–371
Ourselves, Practically and Otherwise Considered, by Miss Mary Rhodes..... 345–349
Experiments with Fertilizers, by Prof. Daniells 349–351
Education for the Farmer, by J. W. McLaury, President of Galesville University, Wisconsin..... 352–358
Labor, a poem, by S. G. Luce..... 360–365
Intelligence vs. Ignorance, by Charles N. Herreid 367–371

XI. AGRICULTURAL CONVENTION AT AURORAVILLE 372–383
Wheat..... 372
Cheese 380
Thoroughbred Mule 382

XII. AGRICULTURAL CONVENTION AT BARABOO.
Pork Raising, How to Make it Pay, by Salmon Braum, Dellano 383–387
Sheep, by I. N. Morley, Excelsior..... 388–395
The Farmer's Life, by J. C. Crawford, Baraboo, Wis... 396–400
Dairying, by Stephen Favill, President of Dairymen's Association..... 401–407
Clover..... 408–410
Manure 411

XIII. ADDRESS OF HON. N. D. FRATT, at the Appleton Agricultural Convention 413–427

XIV. ADDRESS OF COL. WM. B. SLAUGHTER, at the fair grounds in Darlington 428–429

XV. WISCONSIN TOBACCO GROWERS' CONVENTION. 430–434

XVI. AN HISTORICAL ADDRESS BEFORE WISCONSIN PIONEERS — By Hon. GEO. B. SMITH..... 435–453

XVII. FISH FARMING..... 454–462

XVIII. WISCONSIN CANE GROWERS' ASSOCIATION..... 463–467

XIX. THE HORSE — By Dr. C. L. MARTIN.. 468–471

XX. LOCAL AGRICULTURAL SOCIETIES..... 472
Farm growing products in Wisconsin..... 474
Assessment of farm products in Wisconsin..... 478

CONSTITUTION.

ARTICLE I.

OF THE NAME AND OBJECT OF THE SOCIETY.

This society shall be known as the "Wisconsin State Agricultural Society." It objects shall be to promote the advancement of agriculture, horticulture, and the mechanical and household arts.

ARTICLE II.

OF THE MEMBERS.

The society shall consist of life members, who shall pay, on subscribing, twenty dollars, and of honorary and corresponding members, who shall be elected by a two-thirds vote of all the members of the executive board, at any regular meeting. The presidents of county agricultural societies shall be members *ex-officio*, entitled to the same privileges as life members, and, together, shall be known as the general committee of the society.

ARTICLE III.

OF THE OFFICERS.

The officers of the society shall consist of a president, one vice president for each congressional district of the state, a secretary, a treasurer, and seven additional members, who shall hold their respective offices for the term of one year from the first day of January next succeeding the date of their election, and until their successors shall have been elected; and all of whom, together with the ex-president latest in office, and the president and general secretary of the Wisconsin Academy of Sciences, Arts and Letters, shall constitute the executive board.

ARTICLE IV.

OF THE POWERS AND DUTIES OF OFFICERS.

The presidents and vice presidents shall perform such duties as are common to such officers in like associations, as may be required by the executive board.

The secretary shall keep the minutes of all meetings, and have immediate charge of the books, papers, library, and collections, and other property of the society. He shall also attend to its correspondence, and prepare and

superintend the publication of the annual report of the society, required by law.

The treasurer shall keep the funds of the society and disburse the same on the order of the president, or a vice president, countersigned by the secretary, and shall make report of all receipts and expenditures at the regular meeting of the society in December.

The executive board shall have power to make suitable by-laws to govern the action of the several members thereof. They shall have general charge of all the property and interests of the society, and make such arrangements for the holding and management of general and special exhibitions as the welfare of the society and the interests of industry shall seem to require.

The general committee shall be charged with the interests of the society in the several counties where they respectively reside, and constitute a medium of communication between the executive board and the public at large.

ARTICLE V.

OF MEETINGS AND ELECTIONS.

The annual meeting of the society for the transaction of general business, shall be held in its rooms in Madison, on the first Wednesday in December, at nine o'clock A. M., in each year, and ten days' notice thereof shall be given by the secretary, in one or more papers printed in the city of Madison.

The election of officers of the society shall be held each year during and at the general exhibition, and the exact time and place of the election shall be notified by the secretary in the official list of premiums, and in all the general programmes of the exhibition.

Special meetings of the society will be called by order of the executive board, on giving twenty days' notice in at least three newspapers of general circulation in the state, of the time, place and object of such meetings.

At any and all meetings of the society, ten members shall constitute a quorum for the transaction of business, though a less number may adjourn from time to time.

ARTICLE VI.

OF AMENDMENTS.

This constitution may be amended by a vote of two-thirds of the members attending any annual meeting; all amendments having been first submitted in writing at the previous annual meeting, recorded in the minutes of the proceedings, and read by the secretary in the next succeeding meeting for the election of officers. All amendments proposed shall be subject to amendment by a majority vote at the meeting when presented, but not thereafter.

BY-LAWS.

SECTION I.

OF OFFICERS.

The officers of the society shall, *ex-officio*, fill the corresponding offices in the executive committee.

SECTION II.

OF THE DUTIES AND POWERS OF OFFICERS.

The duties of the President, in addition to those defined by the constitution and the by-laws regulating the duties of the permanent committee, shall be as follows, to wit:

1. To inspect the fair grounds after they shall have been prepared for the annual exhibition by the special committee of arrangements, appointed for that purpose, and suggest such modifications or further preparations as he may deem necessary.

2. To formally open the annual fair of the society, at such time as the executive committee may prescribe, with an appropriate address.

3. As the executive head of the society, to have a general supervision and control of the entire exhibition, subject only to the authority of the executive committee.

The duties of the Secretary, more specifically defined than in the constitution, shall be as follows:

1. To make a faithful record of each meeting of the executive committee, and keep such record in a condition for the convenient reference of any member thereof, at any time; also to make a record of every order drawn on the treasurer, and delivered to parties in whose favor they were so drawn — separately entering and numbering the orders drawn to pay premiums and those to pay general expenses, and so defining them — and of all moneys due the society; in all cases holding the parties so indebted responsible therefor until they shall have presented him a certificate from the treasurer, showing that the same has been paid.

2. To open and carry on such correspondence as may be advantageous to the society or to the common cause of agricultural improvement, not only with individual agriculturists and eminent practical and scientific men of

other industrial pursuits, but also with other societies or associations whose objects are kindred to ours, whether in this country or in foreign lands, and to preserve a journal of such correspondence in the archives of the society.

3. To collect and arrange for convenient examination, standard agricultural works and periodical publications, together with such models, machines and implements as may be donated to, or otherwise acquired by the society.

4. To investigate, as far as practicable, the nature of fertilizers, indigenous and cultivated plants, insects injurious to vegetation, etc., and to collect and preserve such specimens thereof as will illustrate the natural history and agricultural resources, condition and progress of the state.

5. To institute, and collect reports therefrom, needed experiments relative to the preparation of the various soils of the state for economical culture, the cultivation of different grains, fruits and garden vegetables, the breeding and raising of stock, etc.

6. To visit, by the advice of the executive committee, or as his own judgment may direct, the various portions of the state, and to give lectures on the science and practice of agriculture, wherever and whenever they may be deemed most necessary or desirable.

7. To co-operate with the superintendent of public instruction and the agent of the normal school board, for the introduction and use in the schools of Wisconsin, of standard works on agriculture and the other industrial arts and sciences.

8. To attend as many as possible of the industrial exhibitions of this country, particularly the county fairs of Wisconsin; to co-operate with the president and special committee of arrangements, for the judicious preparation and management of our state exhibition; and to have the sole supervision and control of the office of entry thereat.

9. To carefully prepare and superintend the publication of the annual report of the society to the governor of the state, embodying therein the proceedings of the State Agricultural Society, an abstract of the reports of the incorporated county agricultural societies of the state, and such reports, essays and addresses, or other matter of information, as may be calculated to enhance the value of said report.

Finally, it shall be his duty, not only by the means above named, but also through such other instrumentalities as he may devise, and the committee approve, to devote himself faithfully and unreservedly to the promotion of the industrial interests of the state.

It shall be the duty of the Treasurer—

1. To receive primarily and exclusively all moneys due the society, from whatever source.

2. To keep a full and faithful record of all receipts of moneys coming into his hands, and of the sources whence derived, in a book specially furnished by and belonging to the society, and to have the same open at all reasonable times, to the inspection of any person or persons authorized by the executive committee to make such examination.

3. To likewise keep an exact record of every order by him paid; and such record must be verified by the proper vouchers, showing that the sums therein named have been by him so paid.

SECTION III.

OF MEETINGS.

The Executive Committee shall meet annually, on the day preceding the day on which the annual meeting of the society is held, on Monday preceding the first Tuesday of February, and again on the first day of the annual fair.

They shall also meet at the call of the secretary, the president and a vice president of the society concurring — and may adjourn to any stated time.

SECTION IV.

OF A QUORUM.

At any meeting of the Executive committee, four members thereof shall constitute a quorum for the transaction of business.

SECTION V.

OF PERMANENT COMMITTEES.

There shall be two permanent committees of the Executive committee, which shall be respectively styled the *Standing Committee* and the *Finance Committee.*

The Standing Committee shall consist of the president, the secretary and the treasurer, who shall have power in the recess of the Executive committee to draw orders on the treasury for all necessary current incidental expenses. But the Executive committee shall have authority, and are hereby required to revise the proceedings or transactions of said Standing committee, and indorse or disapprove of the same.

The Finance Committee shall consist of the president and treasurer, and it shall be their duty to suggest means for increasing the revenues of the society.

They shall also have authority to invest any portion of the funds of the society that may from time to time be set apart by the Executive committee for investment, disposing of such funds upon such terms and conditions as may be prescribed by the said Executive committee.

Each of the above named sub-committees shall be responsible for the faithful discharge of their duties to the Executive committee, to whom an appeal may at any time be taken from their acts or decisions.

The auditing, adjusting, allowing or rejecting of all bills, claims or demands, of whatsoever nature, against the society, and the issuing of orders upon the treasurer for payment of the same — except for the current inci

dental expenses of the society, as by this section already provided for—shall devolve upon the Executive committee; and it shall be the duty of said committee to annually examine the books, papers and vouchers of the treasurer and secretary, and compare the same, and adjust the accounts between those officers and the society, and to report thereon at the annual meeting in December.

SECTION VI.

OF THE ORDER OF BUSINESS.

The following order of business shall be observed at all meetings of the Executive committee:

1. Reading the minutes of the preceding meeting.
2. Reading the minutes and reports of the Standing committee.
3. Reading the minutes and reports of the Finance committee.
4. Report of Auditing committee.
5. Report from special committees.
6. Communications from the secretary.
7. Communications from members of the committees.
8. Unfinished business.
9. Miscellaneous business.

This order of business may be suspended, however, at any time, by a vote of the majority of the members present.

SECTION VII.

OF THE FISCAL YEAR.

The fiscal year of this society shall commence on the first Wednesday of December in each year, and all annual reports of the year previous shall be made up to that time.

SECTION VIII.

OF THE EXPIRATION OF THE TERMS OF OFFICE.

The terms of office of all the officers of this society shall expire on the 31st day of December, in each year.

SECTION IX.

OF AMENDMENTS.

These by-laws may be amended by any regular meeting of the Executive committee by a vote of eight of the members thereof.

LIFE MEMBERS.

Names.	Residence.	Names.	Residence.
Adams, James.....	Janesville.	Blanchard, Willard	Windsor.
Adams, L. L.....	Stoners Prairie	Bostwick, J. M ...	Janesville.
Alexander, O.....	Milwaukee.	Bostwick, R. M...	Janesville.
Allen, J. W	Janesville.	Bonnell, James ...	Milwaukee.
Allen, W. C.....	Delavan.	Bonnell, Lansing..	Milwaukee.
Allen, H. M.....	Evansville.	Boorse, Henry....	Granville.
Allis, Edward P....	Milwaukee.	Boyce, A. A	Lodi
Angell, R. R	Janesville.	Boyd, R. B	Milwaukee.
Angell, W. H.....	Sun Prairie.	Bowen, J. B.....	Madison.
Atkins, Albert R....	Milwaukee.	Bowman, J. M ...	Madison.
Atwood, David	Madison.	Bradley, C. T.....	Milwaukee.
Atwood, Wm. T	San Francisco.	Braley, A. B.. ...	Madison.
Atwood, R. J.....	Madison.	Brazen, Benj	Wauwatosa.
Armour, P. D.....	Milwaukee.	Brichener, G. H ..	Sheboygan F's.
Armstrong, L. G....	Boscobel.	Briggs, F.....	Madison.
Arnold, I. M.... ...	Milwaukee.	Brockway, E. P ..	Ripon.
Arnold, A. A	Galesville.	Brodhead, E. H...	Milwaukee.
Aspinwall, D. M....	Farmington.	Brown, Jas. J.....	Madison.
Ayres, J. W	Kenosha.	Brown, J. A.....	Milwaukee.
		Bruce, A. T.....	Milwaukee.
Barron, H. D.....	St. Croix Falls.	Bryan, John.....	Cross Plains.
Babbitt, Clinton	Beloit.	Bryant, D. D	Madison.
Babbitt, D. H	Janesville.	Bryant, G. E.....	Madison.
Bacon, I. P.....	Westport.	Bull, Stephen.....	Racine.
Bacon, W. D	Waukesha.	Bullard, James ...	Evansville.
Bailey, A P.....	Oshkosh.	Bump, N. P.....	Janesville.
Bailey, M. T.....	Madison.	Bunker, Geo.....	Madison.
Baker, Robt. H.....	Racine,	Burgess, J. M	Janesville.
Barlass, Andrew....	Emerald Grove.	Bush, Samuel	Milwaukee.
Barlass, David.....	Emerald Grove.	Button, Henry H.	Milwaukee.
Barnes, George	Janesville.	Burnham, Miles..	Danville.
Barrows, E. S.....	Chicago.	Burnham, A., Jr..	Milwaukee.
Baxter, Geo	Windsor.	Burnham, J. L....	Milwaukee.
Bates, A. C.....	Janesville.	Byrne, John A....	Madison.
Beecroft, W. G	Madison.		
Bement E.....	Oregon.	Casar, Wm	Janesville.
Bemis, Jervis.....	Footville.	Camp, H. H.....	Milwaukee.
Benedict, J. D.....	Bristol.	Cantwell, M. J....	Madison.
Benedict, S. G.....	Providence, R.I.	Capron, Geo.....	Boston, Mass.
Benedict, W. G	Milwaukee.	Carleton, W. D...	Sun Prairie.
Benson, S. W.....	Bloomfield.	Carpenter, J. A...	Waukesha.
Bigelow, F. G	Milwaukee.	Carpenter, J. E ...	Windsor.
Billings, Earl	Madison.	Carpenter, J. H...	Madison.
Bird, I. W.....	Jefferson.	Carpenter, S. D...	Carthage, Mo.
Bird, T. E.....	Madison.	Carr, N. B.....	Madison.
Bishop, John C.....	Fond du Lac.	Carr, Joseph S....	Eau Claire.
Black, John.....	Milwaukee.	Carter, A. M.....	Johnstown.
Blair, Franklin J...	Milwaukee.	Carter, Guy.....	Janesville.

Names.	Residence.	Names.	Residence.
Carver, P. S	Delavan.	Davidson, Adam..	Verona.
Cary, J.....	Milwaukee.	Davis, G L.....	Milwaukee.
Case, J. I.....	Racine.	Davis, John	Milwaukee.
Chandler, Joseph C.	Madison.	Davis, N. P	Pierceville.
Chandler, Samuel...	Milwaukee.	Davis, S. B.....	Milwaukee.
Chapman, T. A.....	Milwaukee.	Davis, W.....	Center.
Chase, Enoch.....	Milwaukee.	Dean, E. B.	Madison.
Chase, H.....	Milwaukee.	Dean, John S.....	Madison.
Cheney, Rufus.....	Whitewater.	De La Matyr, W. A.	Middleton.
Children, E	Lancaster.	Delaplaine, G. P..	Madison.
Chipman, A.....	Sun Prairie.	DeMor, A. B	Milwaukee.
Chipman, C. R.....	Waunakee.	Dewey, Nelson ...	Cassville.
Church, Wm. A.....	Milwaukee.	DeWolf, E	Fitchb'rg, Mass
Clapp, G. W.....	Fitchburg.	Devoe, A. B	McFarland.
Clark, C M	Whitewater.	Dexter, W. W.....	Janesville.
Clark, Lewis	Beloit.	Dickerman, J. A..	Verona.
Clark, Satterlee.....	Horicon.	Dickson, J. P.....	Janesville.
Cochrane, John.....	Waupun.	Dodge, J. E	Lancaster.
Coggswell, A. W....	Brookfield.	Dodge, H. S.....	Milwaukee.
Colby, Charles.....	Janesville.	Doolittle, W. J....	Janesville.
Coleman, W. W. ..	Milwaukee.	Dore, J. S.....	Neillsville.
Colladay, Wm. M...	Stoughton.	Doris, John.....	Milwaukee.
Colton, John B . ..	Madison.	Dorn, M. M.....	Madison.
Cooper, E. J.....	Mineral Point.	Dousman, T. C....	Waterville.
Cornell, James	Oshkosh.	Dow, O. P.....	Palmyra.
Cornwell, H. H.....	Verona.	Drakeley, S.....	Madison.
Corrigan, John	Cedarburg.	Drury, E. W.....	Fond du Lac.
Cottrill, J. P. C.....	Milwaukee.	Dunlap, S	Burke.
Cottrill, W. H	Appleton.	Dunn, Andrew....	Portage City.
Cottrill, C. M.....	Milwaukee.	Dunn, Wm	Madison.
Cory, J.....	Footville.	Dunning, Abel....	Madison.
Crampton, N. B	Madison.	Durkee, H	Kenosha.
Crawford, J. B.....	Baraboo.	Dutcher, J. A.....	Milwaukee.
Crawl, John.....	Center.	Dwinnell, J. B....	Lodi.
Crilley, John J.....	Milwaukee.		
Crocker, Hans.....	Milwaukee.	Eaton, J. O.....	Lodi.
Crosby, J. B.....	Janesville.	Echlin, J. O.....	Janesville.
Cross, J. B	Milwaukee.	Edgerton, E. W...	Summit.
Crossett, B. F.....	Janesville.	Edmunds, F. W..	Madison.
Culver, Caleb E	Shopiere.	Elderkin, Ed	Elkhorn.
Cummings, Wm	Fitchburg.	Elliott, E.....	Lone Rock.
Curtis, L S	Wauwatosa.	Elliott, Jos. T.....	Racine.
Curtis, F. C	Rocky Run.	Ellis, J. A	Chicago.
Curtis, Seymour	Fitchburg.	Ellsworth, O.....	Milwaukee.
Curtis, D. W.....	Fort Atkinson.	Ellsworth, L.....	Milwaukee.
Curtis, Dexter	Madison.	Ellsworth, W J...	Madison.
Cutting, J. W.....	Harmony.	Elmore, A. E ...	Green Bay.
		Elmore, R. P	Milwaukee.
Daggett, M. L	Madison.	Eldred, John E...	Milwaukee.
Dahlman, Anthony..	Milwaukee.	Elson, Charles....	Milwaukee.
Dahlman, John.....	Milwaukee.	Emmons, N. J....	Milwaukee.
Dann, Obed	Janesville.	Enos, Elihu.....	Waukesha.
Danks, E. P	Stoughton.	Esterly, Geo. W...	Whitewater.
Daniells, W W....	Madison.		
Darling, K. A	Fond du Lac.	Fairbanks, E	St Johnsb'y, Vt.
Darwin, A. G.....	Brooklyn, N. Y.	Farwell, L. J	Chicago.
Daubner, Geo. H...	Brookfield Cen.	Fearn, G. W.....	Janesville.

Names.	Residence.	Names.	Residence.
Ferguson, D.....	Milwaukee.	Green, Geo. G	Milwaukee.
Ferguson, Benj.....	Fox Lake.	Green, Richard ...	Middleton.
Fernly, Jno	La Grange.	Green, Samuel....	Fitchburg.
Field, Martin.....	Mukwanago.	Greene, N. S	Milford.
Field, W. W	Boscobel.	Greenleaf, E. B ...	Milwaukee.
Fifield, L.....	Chicago.	Greenman, C. H ..	Milton.
Fifield, D. E.....	Janesville.	Greenman, H. D..	Milwaukee.
Fifield, E. G.....	Janesville.	Gregory, J. C.....	Madison.
Finch, Lorin	Bradford.	Grinnell, J. G	Adams.
Firmin, F. H	Madison.	Groom, John	Madison.
Fisher, C. C	Center	Grubb, W. S.....	Baraboo.
Fisher, Elijah	Newark.	Guernsey, Orrin ..	Janesville.
Fisher, S. S	Center.	Gurnee, J. D	Madison.
Fisher, Seth.....	Center.		
Fitch, D..	Madison.	Haight, J. M	Sacram'to, Cal.
Fitch, W. F.....	Madison.	Haight, Nicholas .	Madison.
Fitch, W. G	Milwaukee.	Hall, Augustus ...	Janesville.
Fitzgerald, R. P.....	Milwaukee.	Hallock, Youngs .	Middleton.
Fletcher, John.....	Springfield.	Hall, H. P.....	Boston.
Flint, J. G., Jr.....	Milwaukee.	Hall, S. H.....	Burke.
Folds, Geo. H	Madison.	Hanchett, A. M...	Milwaukee.
Foot, E. A.....	Kansas.	Hancock, Brad ...	Chicago.
Foote, A. E..... ..	Milwaukee.	Hanks, A. S	Milwaukee.
Fowle, Jacob.....	Oshkosh.	Hammond, L. M .	Janesville.
Fowler, James S...	Milwaukee.	Hammond, E. S...	Fond du Lac.
Fox, W. H	Fitchburg.	Harrington, N. H.	Delavan.
Fratt, N. D..... ...	Racine.	Harris, Jas	Janesville.
Frank, A. S	Madison.	Harvey, J. W.....	Knoxville,Ten.
Frank, George R....	Boscobel.	Hasbrouck, W....	Eau Claire.
Frankfurth, Wm....	Milwaukee.	Hastings, S. D...	Madison.
Freeman, C. F	Milwaukee.	Hausmann, Jos...	Madison.
Friedman, Ignatius .	Milwaukee.	Hawes, J. F	Madison.
French, Jonathan...	Madison.	Hawes, W. N.....	Verona.
Fuller, M. E.....	Madison.	Hayes, A. J.....	Milwaukee.
Fuller, F. D.....	Madison.	Hazleton, Geo. C .	Boscobel.
Furlong, Thos. T ...	Chicago.	Hazen, Chester ...	Ladoga.
Furlong, John.....	Milwaukee.	Helfenstein, J. A..	Milwaukee.
		Hempsted, H. N..	Milwaukee.
Gammons, Warren..	Middleton.	Hicks, J. H	Oshkosh.
Gates, D. W. C.....	Madison.	Hibbard, W. D ...	Milwaukee.
Gaylord, Aug.....	New York City.	Hibbard, Wm. B .	Milwaukee.
Gernon, George....	Madison.	Higbee, A. T	Stoughton.
Gibbs, Chas. R.....	Whitewater.	Hill, H. J	Madison.
Gilbert, Thomas ...	Oregon.	Hill, James H....	Madison.
Giles, H. H.....	Madison.	Hill, J. W. P	Belleville.
Gillett, R. E.....	Tomah.	Hill, P. B	Milwaukee.
Gilman, H.....	Burke.	Hill, Robert.....	Milwaukee.
Goodenow, H. D....	Madison.	Helmer, A. M	Milwaukee.
Goodrich, Ezra	Milton.	Hinkley, B. R....	Summit.
Goodrich, G.....	Whitesville.	Hobart, L. J	Milwaukee.
Gould, L. D.....	Madison.	Hodge, Robert....	Janesville.
Grady, F. M.....	Fitchburg.	Hodson, C. W .. .	Janesville.
Graham, Alexander..	Janesville.	Hœflinger, Carl...	Wausau.
Grant, S. B	Milwaukee.	Hogan, Gilbert ...	Janesville.
Grant, Albert	Milwaukee.	Hollister, R. M...	Janesville.
Graves, R. A ...	Ripon.	Holmes, A. M	Milwaukee.
Graves, S. W ...	Rutland	Holt, David	Madison.
Green, Anthony.....	Milwaukee.	Holton, Edward D.	Milwaukee.

Names.	Residence.	Names.	Residence.
Hopkins, Bedford B.	Milwaukee.	Landauer, Max...	Milwaukee
Hopkins, James	Madison.	Lapham, Henry ..	Summit.
Hopkins, E. C.....	Milwaukee.	Larkin, B. F.....	Madison.
Hoskins, J. W.....	Milwaukee.	Larkin, C. H.	Milwaukee.
Hoskins, Alfred.....	Janesville.	Larkin, Daniel ...	Madison.
Houston, Peter.. ...	Cambria.	Larkin, William..	Madison.
Hoyt, J. W.....	Madison.	Lawrence, W. A...	Janesville.
Hulbert, E.....	Oconomowoc.	Lawton, J. G.....	Green Bay.
Hume, Wm.....	Oshkosh.	Lazier, Ed.....	Madison.
Hutson, J. S.....	Stoughton.	Learned, J. M	California.
Hudson, John.....	Madison.	Leidersdorf, B...	Milwaukee.
Hyde, Edwin.....	Milwaukee.	Leitch, W. T.....	Madison.
		Leitch, W. T., Jr..	Vienna.
Ilsley, Chas, F.....	Milwaukee.	Leslie, John.....	Madison.
Inbusch, J. H.....	Milwaukee.	Lester, Waterman.	Janesville.
Ingham, A. C.....	New York.	Lewis, Herbert A.	Madison.
		Lewis, John L ..	Madison.
Jacobs, William.....	Madison.	Lindsey, E. J.....	Milwaukee.
Jackman, Hiram....	Chicago.	Little, Thos. H....	Janesville.
Jeffrey, Geo.....	Smithville.	Lloyd, Lewis.....	Cambria..
Jenks, S. R.....	Madison.	Lockwood, John..	Milwaukee.
Jenkins, J. C.....	Janesville.	Ludington, H.....	Milwaukee.
Jerdee, L. P.....	Madison.	Ludington, James.	Milwaukee.
Jerdee, M. P.....	Madison	Ludlow, A.....	Monroe.
Johnson, Jno., Jr ...	Madison.	Lucy, O. K.....	Columbus.
Johnson, M. B.....	Janesville.	Lyman, H	Dakota.
Johnson, Joseph...	Hartland.	Lynch, T. M.....	Janesville.
Johnston, John.....	Milwaukee.	Lynde, W. P.. ...	Milwaukee.
Johnson, John A....	Madison.	Lysagnt, Wm.....	Belleville.
Johnson, Hugh L...	Milwaukee.		
Johnson, John.....	Milwaukee.	Main, Alex. H....	Madison.
Jones, C. H.....	Sun Prairie.	Mann, I. L.....	Fitchburg.
Jones, John N.....	Madison.	Mann, J. E.....	Sun Prairie.
Juneau, Paul.....	Juneau.	Mann, Henry.....	Milwaukee.
Janssen, E. H.....	Mequon.	Mann, Curtis....	Oconomowoc.
		Macy, J. B.....	Fond du Lac.
Kellogg, Geo. J.....	Janesville.	Manwaring, Wm..	Black Earth.
Kiewert, Emil.....	Milwaukee.	Marshall, Samuel.	Milwaukee.
Kent, A. C..... ...	Janesville.	Martin, A. C.....	Ashton.
Kershaw, C. J.....	Milwaukee	Martin, C. L.....	Janesville.
Kershaw, W. J.....	Milwaukee.	Martin, Nathaniel.	Monroe.
Keyes, E. W.....	Madison.	Martin, S. W	Madison.
Kimball, M. G.....	Sheboygan.	Mason, Geo. A....	Madison.
Kimball, John.....	Janesville.	Masters, E. D.....	Jefferson.
Kingsley, S. P.....	Springfield.	Mathews, A. K ...	Milwaukee.
Kingston, J. T... ...	Necedah.	Matteson, Clinton.	Rosendale.
Kiser, W. C...	Madison.	Matts, J. H. B. ..	Verona.
Kiser, J. C.....	Oregon.	Maxson, O. T.....	Waukegan.
Klauber, Samuel...	Madison.	May, A. C....	Milwaukee.
Knight, E.....	Sun Prairie.	Mayhew, T. J....	Milwaukee.
Kneeland, Moses....	Milwaukee.	Mayhew, J. L.....	Milwaukee.
Kneeland, James....	Milwaukee.	McCarty, F. D....	Fond du Lac.
Knowles, Geo.....	Milwaukee.	McConnell, T. J...	Madison.
Knapp, J. G.....	Tamps, Flor.	McCormick, J. G.	Madison.
Koss, Rudolph.....	Milwaukee.	McCullough, And.	Emerald Grove
		McDonald, A.....	Alloa.
Ladd, M. L.....	Sugar Creek.	McDougal, G. W..	Madison.
Lamb, F. J.....	Madison.	McDowell, H. C...	Oconomowoc.

Names.	Residence.	Names.	Residence.
McGeoch, P.....	Milwaukee.	Pember, R. T.....	Janesville.
McLaren, Wm. P...	Milwaukee.	Perkins, P. M....	Burlington.
McNiel, David	Stoughton.	Perrine, L. W.....	Janesville.
McGregor, Alex....	Nepeuskun.	Perry, B. F.....	Madison.
McPherson, J. P....	Springdale.	Pfister, Guido.....	Milwaukee.
Merrill, Alf.....	Madison.	Phelps, A. Warren	Milwaukee.
Merrill, S. S	Milwaukee.	Pierce, C. L.....	Milwaukee.
Miller, John.....	Madison.	Pilgrim, D. T.....	West Granville
Mills, Simeon	Madison.	Pinney, S U.. ...	Madison.
Miner, Cyrus.....	Janesville.	Pickney, B.....	Fond du Lac.
Miner, John B.....	Milwaukee.	Plankinton, John	Milwaukee.
Mitchell, Alex.....	Milwaukee.	Plumb, J. C.....	Milton.
Mitchell, J. L.....	Milwaukee.	Plumb, T. D.....	Madison.
Morden, E.....	Madison.	Plummer, B. C...	Wausau.
Morehouse, L H....	Milwaukee.	Pond, Samuel A..	Albany.
Morrison, W. H....	Elkhorn.	Porter, Wm. H...	Marshall.
Morse, Samuel.....	Milwaukee.	Porter, G. E.....	Eau Claire.
Moseley, J. E.....	Madison.	Post, David.....	Milwaukee.
Mosher, J. C.....	Lodi.	Power, D. G.....	Milwaukee.
Moxley, A. R.....	Madison.	Powers, D. J.....	Chicago.
Mullen, James.....	Milwaukee.	Powers, W. J.....	Black Earth.
Murray, George.....	Racine.	Pratt, E. E.	Chicago.
		Pr s.St.Peter's Val. Farmer's Club..	Springfield.
Nash, C. D.....	Milwaukee.	Pritchard, P. M...	Fitchburg.
Nazro, John..... ..	Milwaukee.	Proudfit, Andrew.	Madison.
Needham, J. P.....	Wauwatosa.		
Newcomb, S. B.....	Cold Spring.		
Newton, Ephraim..	Oregon.	Rawson, C. A.....	Madison.
Newton, I. S	East Middleton.	Ray, Charles	Milwaukee.
Nicholas, L. T.....	Janesville.	Raymond, S. O...	Geneva.
Norris, C. W	Milwaukee.	Riordan, Charles..	Oshkosh.
Norton, J. B.....	Madison.	Reed, Harrison...	Jack'nville, Fla
Nowell, W. A.....	Milwaukee.	Ressigue, A. C....	Janesville.
		Reynolds, Thos...	Madison.
Ober, R. P.	Milwaukee.	Reynolds, John...	Kenosha.
Ogilvie, Robert.....	Madison.	Rexford, J. D.....	Janesville.
Oliver, Joseph B....	Milwaukee.	Rice, E. M.....	Whitewater.
Olney, C. W.....	La Cygne, Kan.	Richards, Richard	Racine.
Orr, G. H.....	Verona.	Richardson, D...	Middleton.
Ott, Geo. V.....	Madison.	Richardson, James	Buffalo. N. Y.
		Richardson, R J..	Janesville.
Page, H. M....	Madison.	Richardson, H ...	Janesville.
Palmer, H. L.....	Milwaukee.	Richmond, A.....	Whitewater.
Palmer, J. Y.... ...	Oregon.	Riebsam, C. R ...	Madison.
Palmer, O. M.	Oregon.	Robbins, J.	Vienna.
Palmer, Henry.....	Oregon.	Robbins, J. V.....	New York.
Park, John W.....	Vernon.	Roddis, R...	Milwaukee.
Park, Wm. J.....	Madison.	Rodgers, Lawrence	Westport.
Parker, C. H.....	Beloit.	Roe, J. P.....	Franklin.
Parmley, Ira	Center.	Rogers, C. H.....	Milwaukee.
Parsons, P. B.....	Madison.	Rodgers, D. J.....	Milwaukee.
Partridge, J. S.....	Whitewater.	Rogers, J. S.....	Burlington.
Patten, L. F...	Janesville.	Rogers, Anson....	Janesville.
Patton, Jas. E.....	Milwaukee.	Rogers, H. S.....	Milwaukee.
Paul, Geo. H.....	Milwaukee.	Ross, James.....	Botany Bay.
Payne, Wm.....	Janesville.	Rowe, Richard W.	Madison.
Payne, H. C.....	Milwaukee.	Rowe, W. E.....	Mazomanie.
Peffer, G. P.....	Pewaukee.	Ruggles, J. D.....	San Francisco.

Names.	Residence.	Names.	Residence.
Russell, Harvey.....	Milwaukee.	Steensland, H.....	Madison.
Ryder, James K.....	Waterloo.	Stewart, C. K.....	Danville.
		Stewart, G. H.....	Col. Sp'gs, Col.
Sage, E. C.....	New Lisbon.	Stilson, Eli.....	Oshkosh.
Salisbury, R. W.....	Fitchburg.	Stilson, Edgar....	Oshkosh.
Salisbury, D. F.....	Fitchburg.	St. John, J. W....	Janesville.
Sanderson, Edw.....	Milwaukee.	Stockman, John ..	Milton.
Sanderson, R. B....	Madison.	Stone, G.....	Beloit.
Sarles, John H.....	Boscobel.	Storm, Wm.....	Madison.
Schute, Charles....	Milwaukee.	Stowe, La Fayette.	Sun Prairie.
Schutt, U.....	Janesville.	Street, Richard ...	Waukesha.
Scott, S. B.....	Milwaukee.	Sutherland, C....	Syene.
Seville, James	Merrimac.	Swain, Wm. W. ..	Madison.
Sexton, Kellogg	Milwaukee.		
Sexton, W. F.....	Milwaukee.		
Simmons, C. J	Monroe.	Tallman, W. H. ..	Janesville.
Sinclair, Jeff.	Milwaukee.	Taylor, E.....	Mukwanago.
Sharp, J. W.....	Iowa.	Taylor, W. R.	Cottage Grove.
Shaw, J. B.	Milwaukee.	Tenney, H. A....	Madison.
Sheldon, A. H.....	Janesville.	Tenney, D. K.....	Chicago.
Sheldon, D. G..	Madison.	Tenney, Samuel...	Durham Hill.
Sheldon, S. L.....	Madison.	Terry, A. H.....	Milwaukee.
Shepherd, C.....	Milwaukee.	Terwilliger, Jas...	Syene.
Sherman, Amaziah..	La Prairie.	Thorson, John....	Milwaukee.
Sherman, George ...	La Prairie.	Tibbits, Geo. M...	Milwaukee.
Sherman, J. M.....	Burnett.	Tierney, K.....	California.
Sherwood, J. C.	Dartford.	Thompson, W. H..	Chicago.
Shipman, S. V.....	Chicago.	Thorp, J. G.....	Eau Claire.
Skelley, Charles ...	Janesville.	Todd, J. G...	Janesville.
Skinner, George J...	Sio'x Falls, D.T.	Tolford, J. W.....	Neillsville.
Skinner, E. W.....	Turner, D. T.	Torgerson, Lars...	Madison.
Slaughter, Geo. H...	Madison.	Torrey, R D.....	Oshkosh.
Sloan, I. C.....	Madison.	Townley, John....	Moundville.
Slocum, G. A..	Chicago.	Treat, R. B.	Chicago.
Smith, Wm. E.....	Milwaukee.	Treat, George E...	Milwaukee.
Smith, Winfield.....	Milwaukee.	Twining, M. S....	Magnolia.
Smith, Angus.....	Milwaukee.		
Smith, Adam	Burke.		
Smith, J. B.....	Milwaukee.	Van Brunt, W. A..	Horicon.
Smith, S. W.....	Janesville.	Van Cott, Albert B.	Chicago.
Smith, H. L.....	Janesville.	Van Etta, Jacob...	Madison.
Smith, M. C.....	Janesville.	Van Kirk, N.....	Milwaukee.
Smith, S. B.....	Vernon.	VanNorstrand, A.H	Green Bay.
Smith, J. Maurice...	Chicago.	Van Schaick, I. W.	Milwaukee.
Snell, H.....	Madison.	Van Slyke, N. B...	Madison.
Spaulding, William.	Janesville.	Vaughan, O. A. ..	Lodi.
Spaulding, Joseph ..	Janesville.	Viall, Andrus.....	Madison.
Spencer, James C. ..	Milwaukee.	Vilas, Chas. H.....	Cleveland, O.
Spencer, R. C.....	Milwaukee.	Vilas, L. M.....	Eau Claire.
Squier, Thomas H..	Waterloo.	Vilas, Wm. F.....	Madison.
Stannard, A. C.....	Milton.		
Stark, Charles A....	Milwaukee.		
Steele, Chester.....	Milwaukee.	Wackerhagen, E..	Racine.
Stevenson, Isaac	Marinette.	Wait, J. B.....	Waitsville.
Stevens, Geo. C.	Milwaukee.	Warren, Albert ...	Madison.
Stevens, J. T.....	Madison.	Warren, J. H.....	Albany.

Names.	Residence.	Names.	Residence.
Warren, W. R	Madison.	Williams, C. H ...	Baraboo.
Webster, James.....	Danville.	Williams, D.....	Darien.
Webster, Martin	Fox Lake.	Williams, Daniel.	Summit.
Webb, James A.....	Janesville.	Williams, G. G....	Whitewater.
Welch, W.....	Madison.	Williams, J. P....	Janesville.
Wells, Daniel L	Milwaukee.	Williams, Randall.	Janesville.
Werner, John	Sauk.	Williams, S. B....	Madison.
West, Henry.....	Madison.	Williams, S. G....	Janesville.
West, S. C.....	Milwaukee.	Wilson, Wm.....	Westport.
West, Henry M.....	Milwaukee.	Wilson, Zebina...	Palmyra.
Whaling, J. M.....	Milwaukee.	Wood, J. W	Baraboo.
Wheeler, Geo. F....	Waupun.	Woolley, J. T.....	Milwaukee.
Wheeler, Guy.....	La Prairie.	Wootton, Robert..	Madison.
Wheeler, W. A.....	Middleton.	Worthington, B. M.	Madison.
Wheeler, L. A	Milwaukee.	Worthington, Geo.	Milwaukee.
Wheelock, W. G....	Janesville.	Wright, D. H.....	Madison.
Wheelwright, J.....	Middleton.	Wright, Geo.....	Mt. Horeb.
Whiting, W. F	Milwaukee.	Wright, J. S.....	Emerald Grove.
Whitney, W. F	Milwaukee.	Wright, Josiah S..	Janesville.
Wicks, Thomas.....	Milwaukee.	Wylie, Geo. W....	Elkhorn.
Wight, O. W.....	Milwaukee.		
Wightman, H	Black Earth.		
Wilcox, C. T.....	Janesville.	Young, J. E.....	Janesville.
Wilkins, A. W.....	Milwaukee.		
Wiley, O. S.....	Benton Harbor, Mich.	Zwietusch, Otto ..	Milwaukee.

OFFICERS OF THE SOCIETY.

1880.

PRESIDENT.

HON. N. D. FRATT, RACINE.

VICE-PRESIDENTS.

1st Congressional District—CLINTON BABBITT, BELOIT.
2d " " —A. A. BOYCE, LODI.
3d " " —J. H. WARREN, ALBANY.
4th " " —D. T. PILGRIM, WEST GRANVILLE.
5th " " —SATTERLEE CLARK, HORICON.
6th " " —ELI STILSON, OSHKOSH.
7th " " —JOHN S. DORE, NEILLSVILLE.
8th " " —B. G. PLUMMER, WAUSAU.

SECRETARY.

GEORGE E. BRYANT, MADISON.

TREASURER.

CYRUS MINER, JANESVILLE.

ADDITIONAL MEMBERS OF THE EXECUTIVE COMMITTEE.

DR. C. L. MARTIN, JANESVILLE.
DR. W. H. FOX, OREGON.
A. A. ARNOLD, GALESVILLE.
W. S. BACON, WAUKESHA.
WM. C. KISER, SYENE.
CHESTER HAZEN, LADOGA.
W. W. FIELD, BOSCOBEL.

EIGHTEENTH ANNUAL REPORT

OF THE

SECRETARY

OF THE

STATE AGRICULTURAL SOCIETY.

To His Excellency, WILLIAM E. SMITH,
Governor of Wisconsin:

SIR:—The acres devoted to the raising of winter wheat by the farmers of the state have been largely added to, the past year. Although the early spring was unfavorable to this beautiful crop, it is believed the harvest will bring joy to those who planted it, and that it will far excel in value the crop of spring wheat. As our herds increase, our acres of grass multiply, and a better system of farming is being pursued in Wisconsin. Sections of wheat are a thing of the past. Mixed husbandry is universal, and our people are wiser, happier and richer therefor. The most marked increase in acreage is in the crop of tobacco. Our soil and seasons, south of the Wisconsin river, are especially adapted to the growth of this profitable to be raised crop, and when experience shall have learned us how to properly handle it, it will become as famous as that heretofore grown in the valley of the Connecticut.

Our annual convention was largely attended. This society sent delegates to five local conventions. These conventions, parented by the state society, are held during the winter months, under the direction of different local societies, and have become very popular and profitable. Crowded houses have been the

rule, and the enthusiasm kept up to the end of a three days meeting, farmers coming for a distance of fifty miles round about to attend, bringing with them, what is better, their sons and daughters, who, as you will see by the reports herewith submitted, have often taken part in the proceedings. The farmers of the state are under great obligations to Prof. W. W. Daniells, of the State University, for the interest he has taken in these agricultural meetings, and on behalf of *all* the farmers of the state, I here publicly thank him for his presence, encouragement and counsels.

The growing of fine cattle is an important business in Wisconsin. Export steers as well as cheese, "Wisconsin grown," are seeking the markets of the old world, and it may truthfully be said that the farmers of Wisconsin have reached the time and laid hold of the principles promulgated by the order of the Patrons of Husbandry, "That they would sell on the hoof and in the fleece, and not from the *half bushel*." It may be safely said that Wisconsin has passed the period of speculation, heavy loans and exorbitant interest, incident to the settlement of a new state, and has entered upon a career of stability and solid permanent growth. Her prairies are all under subjugation, and hereafter the additions to our farms must be hewed from the forests of the north. This growth must necessarily be comparatively slow, but it will be substantial and lasting. The born sons of Wisconsin are fast taking the place of the "carpet bagger," and as the love of country predominates in every heart, so when the soil of our state has passed to the hands of those who are to the manor born, it will be better cultivated, more loved and kinder cared for than it was possible for the pioneers to do. While our state has some grand commercial cities of which our *whole* people are justly proud, it must not be forgotten that Wisconsin is an agricultural state, and her greatness and glory will depend largely upon the tillers of her soil. It should not be forgotten that a majority of the professional and business men of the country are the sons of farmers, and a wise and liberal policy should be pursued by the state towards this her greatest industry.

The State Agricultural Society, by the dissemination of her

volumes, by her yearly fairs, by a large and increasing correspondence, has tried to make better farmers within our borders, and its members believe they have made its works felt for good throughout the state. We have tried to teach the young farmers of Wisconsin that dollars are not all that is worth living and working for; that culture and refinement should be sought after; hence at our great annual fairs, we have sought to have exhibited, and have shown, not only the finest cavalcade of live stock ever seen on the continent, but we have also exhibited the best and costliest machinery made in the land, as well as paintings, and other works of art. For the exhibition of 1880, a department of education has been added, designed for the exhibition of educational literature, text-books, school furniture, fittings, and all appliances and apparatus for illustration, instruction and training, as well as the specimens of work that have been done by the pupils of our state schools during the past school year.

The farmers of Wisconsin have adopted the creed promulgated by the dwellers in the Canadian peninsular, and which says:

"We believe in small farms and thorough cultivation; we believe that the soil lives to eat, as well as the owner, and ought, therefore, to be well manured; we believe in going to the bottom of things, and, therefore, deep plowing and enough of it, all the better if it be a subsoil plow; we believe in large crops which leave the land better than they found it, making both the farm and the farmer rich at once; we believe every farm should own a good farmer; we believe that the fertilizer of any soil is a spirit of industry, enterprise and intelligence; without these, lime, gypsum and guano would be of little use; we believe in good fences, good farm houses, good orchards, and good children enough to gather the fruit; we believe in a clean kitchen, a neat wife in it, a clean cupboard, a clean dairy, and a clean conscience; we believe that to ask a man's advice is not stooping, but of much benefit; we believe that to keep a place for everything and everything in its place, saves many a step, and is pretty sure to lead to good tools and to keeping them in order; we believe that kindness to stock, like good shelter, is saving of fodder; we believe that it is a good thing to keep an eye on experiments, and note all, good and bad; we believe that it is a good rule to sell grain when it is ready; we believe in producing the best butter and cheese, and marketing it when it is ready."

Much good feeling is expressed at your appointment of ex-Lieutenant Governor Parker to the Board of Regents of the State Uni-

versity; and it is hoped that the chair of agriculture will be sustained by the sons of Wisconsin farmers. Reports of fifty-seven local societies were filed in accordance with the statutes.

For the Executive Board,

GEO. E. BRYANT,
Secretary.

PROCEEDINGS.

EXECUTIVE BOARD MEETINGS.

In accordance with the requirements of the by-laws of the Wisconsin State Agricultural Society, the executive board met at the agricultural rooms in the capitol, September 8, 1879.

Present, President Fratt, Vice-Presidents Boyce, Warren, Clark, Torrey and C. L. Martin, Treasurer Miner, and Messrs. C. Babbitt, Field, Hazen, Stilson, and Secretary Geo. E. Bryant.

President N. D. Fratt in the chair; who called to order and stated the board was convened for the purpose of acting upon such matters as might be deemed important relative to the annual fair.

On motion, Hon. J. O. Eaton was appointed Superintendent over Swine Department, vice Dore, called home by sickness and death of his child.

The board met on each evening during the fair, adjusted all matters of difference which arose, giving such directions as were important, and adjourned on Saturday, after auditing and paying the premiums awarded and claims allowed.

DECEMBER MEETING.

STATE AGRICULTURAL ROOMS,
December 2, 1879.

As provided by the by-laws and pursuant to published notice, the executive board met in their rooms in the capitol, December 2, 1879. Quorum present.

President Fratt in the chair, who stated that the meeting was for the purpose of settling with the treasurer, comparing his vouchers with the warrant account of the secretary, and any other general business.

Cyrus Miner, treasurer of the society, presented his report, showing the financial exhibit of the society for the fiscal year ending December 2, 1879, and which may be found in the volume of transactions for 1879–80, under the head of "Annual Meeting." Which report was compared and examined with the books of the secretary by President Fratt and the finance committee, and affirmed.

On motion, adjourned.

FEBRUARY MEETING.

STATE AGRICULTURAL ROOMS,
MADISON, *February* 2, 1880.

The executive board of the Wisconsin State Agricultural Society met in their rooms, in the capitol, at 7:30 P. M., as required by the by-laws.

Present, President N. D. Fratt, Vice Presidents C. Babbitt, A. A. Boyce, D. T. Pilgrim, Satterlee Clark, John S. Dore, and additional members, C. L. Martin, Wm. H. Fox, W. W. Field, A. A. Arnold, W. D. Bacon, Chester Hazen, Treasurer Cyrus Miner, and Secretary George E. Bryant.

President N. D. Fratt in the chair.

Reports of superintendents were read to the board.

Voted, on motion of Vice President Sat. Clark, that a committee of five be appointed by the chair to locate the fair.

Voted, that the premiums be not increased in aggregate.

Voted, that a committee of three be appointed to fix purses for races. Chair appointed Messrs. Babbitt, Clark and Bryant as such committee.

Voted, that a class of walkers be put in races to go in harness, for purse of thirty dollars.

Voted, that the secretary pay Mr. Dunlap six dollars on account of protested premiums.

Voted, that hereafter each superintendent, including the marshal, secretaries, gate keepers, and forage departments, employ *one* assistant, and that all other help necessary may be employed by each head of a department at two dollars per day.

TUESDAY, *February* 6, 1880.

Board met, Vice President Clark in the chair.

Voted, that there be made a department of education and natural history, of which John S. Dore shall be superintendent, and that not more than one hundred dollars be appropriated thereto.

Chair appointed, as committee to locate fair,

President N. D. Fratt, Treasurer C. Miner, Secretary George E. Bryant, Vice President Sat. Clark and Hon. A. A. Arnold.

Voted, that the fair be held from September 6th to 10th, 1880, inclusive.

2 P. M., TUESDAY.

Vice President A. A. Boyce in the chair.

Voted, that the president, treasurer and secretary be authorized to borrow sufficient money to pay off the debts of the society.

Voted, that the president, secretary and marshal arrange for police, watchmen and fence guards.

Voted, that three hundred and fifty dollars be appropriated for prize drill of companies composing Wisconsin National Guard:

For best drilled company of forty men	$125 00
Second best	100 00
Third best	75 00
Fourth best	50 00

The board passed the following resolutions:

Resolved, That this board look with favor upon any movement that looks to the permanent establishment of a national agricultural society that will advance the great agricultural interests of the United States.

WHEREAS, The great and rapidly increasing industries of Wisconsin and the northwest demand that transportation to the seaboard should be brought to the lowest possible limit consistent with justice to the railway companies, and believing that congress has the power to regulate commerce between the states, therefore

Resolved, That our senators and representatives in congress are hereby requested to use their influence in favor of some just law relative to inter-state commerce.

Resolved, That the president and secretary of this society forward a copy of the foregoing preamble and resolution to the Wisconsin senators and representatives in congress.

Voted, that the exhibition of 1880 be open to the world.

On motion, adjourned.

MADISON, WIS., *April* 1, 1880.

To GEO. E. BRYANT, Secretary State Agricultural Society:

SIR:— I am directed by the committee appointed in February to locate the State Fair for 1880, to inform you that the said committee met March 30th, and passed the following resolution, and that the requirements of the same have been complied with, and that the fair is located at Madison for 1880.

N. D. FRATT, *President, for the committee.*

Resolved, That the State Fair of 1880 be located in the city of Madison, conditioned that the sum of one thousand dollars be subscribed by the citizens of said city, by the 10th day of April, 1880, to make certain necessary repairs upon the State Fair grounds.

MADISON, *March* 30, 1880.

SOCIETY MEETINGS.

ELECTION OF OFFICERS.

MADISON, *September* 11, 1879.

In accordance with the requirements of the constitution, and after due notice by the secretary, the life members of the Wisconsin State Agricultural Society convened at the agricultural rooms in the capitol, at Madison, at 8 o'clock P. M., to elect officers for 1880. President Fratt in the chair. The president said the society was convened for the purpose of electing officers for 1880, and other constitutional work.

Voted, that the chair appoint a committee of one from the state at large, and that each congressional district elect one, to recommend candidates for the offices of 1880.

The following committee was appointed and elected:

State at Large — Wm. T. Leitch, Madison.
1st District — C. Babbitt, Beloit.
2d District — G. H. Slaughter, Madison.
3d District — J. H. Warren, Albany.
4th District — D. T. Pilgrim, Granville.
5th District — C. Hazen, Ladoga.
6th District — Eli Stilson, Oshkosh.
7th District — A. A. Arnold, Galesville.
8th District — ——— ———.

The committee retired, and by their chairman submitted the following report:

For officers of the society:

PRESIDENT.

N. D. FRATT, Racine.

VICE PRESIDENTS:

1st Congressional District — C. BABBITT, Beloit.
2d Congressional District — A. A. BOYCE, Lodi.
3d Congressional District — J. H. WARREN, Albany.
4th Congressional District — D. T. PILGRIM, Granville.
5th Congressional District — SATTERLEE CLARK, Horicon.
6th Congressional District — ELI STILSON, Oshkosh.
7th Congressional District — JOHN S. DORE, Neillsville.
8th Congressional District — B. G. PLUMBER, Wausau.

SECRETARY,

GEORGE E. BRYANT, Madison.

TREASURER,

CYRUS MINER, Janesville.

ADDITIONAL MEMBERS OF EXECUTIVE COMMITTEE,

C. L. MARTIN, Janesville.
WM. H. FOX, Oregon.
W. W. FIELD, Boscobel.
A. A. ARNOLD, Galesville.
W. D. BACON, Waukesha.
CHESTER HAZEN, Ladoga.
WM. C. KISER, Syene.

On motion, the report of the committee was accepted and adopted.
On motion, the society adjourned *sine die.*

ANNUAL MEETING.

STATE AGRICULTURAL ROOMS,
December 3, 1879.

As required by the constitution, the Wisconsin State Agricultural Society met in their rooms in the capitol at 9 o'clock A. M. President N. D. Fratt in the chair. Quorum present.

Cyrus Miner, the treasurer, presented his annual report, showing the financial condition of the society for the fiscal year ending December 2, 1879, bearing the approval of the executive board.

TREASURER'S REPORT.

For the year ending December 2, 1879. Approved by the auditing committee, and a committee appointed by the society, and the vouchers deposited in the office of the secretary.

STATE AGRICULTURAL ROOMS,
MADISON, *December* 2, 1879.

To the Executive Board of the Wisconsin State Agricultural Society:

GENTLEMEN — I have the honor to hand you herewith a statement of the receipts and disbursements of your society, for the year ending December 2, 1879.

Respectfully submitted,

C. MINER,
Treasurer.

TREASURER'S REPORT.

RECEIPTS.

Balance on hand December 3, 1878	$3,819 64	.....
Amount from Vick's special premiums	40 00	.....
Amount for rent of ground	1,656 43	.....
Amount from sale of tickets	8,217 50	.....
Amount from secretary, entry fees	1,145 95	.....
Amount from membership	160 00	.....
Amount from sale of fertilizer	15 00	.....
Amount from sale of forage	49 25	.....
Amount from Layton & Co., special premiums	25 00	.....
Amount from Milwaukee Chamber of Commerce, special premiums	50 00	.....
Amount from Plankinton & Armour, special premiums	25 00	.....
Amount from advertising	25 00	.....
Amount from interest and premium on bonds	98 84	.....
Amount from state appropriation	2,000 00	.....
Amount from State Horticultural Society	172 80	.....
		$17,500 41

DETAILED STATEMENT OF DISBURSEMENTS.

As compared with warrant account of secretary.

No. of order.	To whom and for what.	Amount.
1	Miner, C., expenses and sundries	$20 60
2	Boyce, A. A., expenses	5 50
3	Drakeley & Son, premium, 1878	40 00
4	Keyes, E. W., postage	3 00
5	Keyes, E. W., postage	2 00
6	Keyes, E. W., postage	1 00
7	Stilson, Eli, premium, 1878	4 00
8	Nichols, J. H., express	2 75
9	Keyes, E. W., postage	3 00
10	Keyes, E. W., postage	1 00
11	Dore, J. S., expenses, board meeting	18 72
12	Arnold, A. A., expenses, board meeting	15 22
13	Miner, C., expenses, board meeting	11 00
14	Babbitt, C., expenses, board meeting	8 37
15	Clark, Satterlee, expenses, board meeting	23 25
16	Torrey, R. D., expenses, board meeting	10 14
17	Hazen, C., expenses, board meeting	9 62
18	Ludington, H., expenses, board meeting	20 00
19	Boyce, A. A., expenses, board meeting	9 00
20	Martin, C. L., expenses, board meeting	11 00
21	Fratt, N. D., expenses, board meeting	37 00
22	Booth, W. A., express	2 00
23	Good, N., stamps	6 00
24	Bryant, Geo. E., office expenses	10 00
25	Racine Silver Plate Co	277 59
26	Lawrence, F. S., premium, 1878	8 50
27	Bryant, Geo. E., salary	450 00
28	Martin, C. L., expenses, committee meeting	8 40
29	Fratt, N. D., expenses, committee meeting	8 00
30	Field, W. W., expenses, committee meeting	12 00
31	Keyes, E. W., postage	4 00
32	Keyes, E. W., postage	2 50
33	Report proceedings of convention	135 00
34	Keyes, E. W., postage	1 00
35	Paid interest on note	315 00
36	Bryant, Geo. E., salary	450 00
37	Pierce, A. J., assistant superintendent 1878	8 00
38	Nichols, J. H., express	2 65
39	Keyes, E. W., postage	5 50
40	Allen, L. F., books	9 00
41	Colvin, R. L, postage	20 00
42	Booth, W. A., express	3 40
43	Keyes, E. W., postage	15 00
44	Keyes, E. W., postage	2 00
45	Nichols, J. H., express	1 45
46	Keyes, E. W., postage	42 40
47	Keyes, E. W., postage	5 60
48	Keyes, E. W., postage	4 00
49	Colvin, R. L., postage	10 50
50	Memhard, F., premium	6 11
51	Tafor, A. O., printing	3 00
52	Booth, W. A., express	11 40

No. of order.	To whom and for what.	Amount.
53	Keyes, E. W., postage	$23 70
54	Slaughter, B. C., clerk	30 00
55	Keyes, E. W., postage	17 60
56	Keyes, E. W., postage	5 60
57	Keyes, E. W., postage	15 60
58	Keyes, E. W., postage	$5 00
59	Keyes, E. W., postage	5 60
60	Nichols, J. H., express	4 10
61	Keyes, E. W., postage	8 00
62	Keyes, E. W., postage	5 00
63	Keyes, E. W., postage	10 60
64	Keyes, E. W., postage	6 00
65	Keyes, E. W., postage	3 00
66	Keyes, E. W., postage	8 60
67	Speckner, Anna, repairing flags	3 50
68	Nichols, J. H., express	13 40
69	Welch, Wm., post bills	12 00
70	Heywood, V. A., post bills	10 00
71	Keyes, E. W., postage	5 60
72	Keyes, E. W., postage	5 00
73	Gilson, N. S., post bills	1 20
74	Keyes, E. W., postage	5 60
75	Keyes, E. W., postage	5 00
76	Booth, W. A., express	2 05
77	Kendall, P. C., wire clasp	10 00
78	Torrey, R. D., superintendent	40 00
79	Torrey, R. D., sundries	8 65
80	Walreth, J., labor	10 00
81	Curtis, D. W., postage	5 00
82	Hicks, J. H., clerk	29 00
83	Pierce, John, assistant superintendent	29 00
84	Philbrook, S. A., assistant superintendent	24 50
85	Stilson, Eli, post bills	1 50
86	Wagstaff, S. W., gate attendant	17 50
87	Jeffries, W., gate attendant	17 50
88	Fellows, B. B., gate attendant	17 50
89	Robertson, A. J., gate attendant	17 50
90	Stilson, Edgar, gate attendant	17 50
91	Gartner, F., gate attendant	17 50
92	Bacon, W. D., superintendent	20 00
93	Curtis, W. D., assistant superintendent	10 00
94	Warren, A., gate attendant	17 50
95	Nee, James, police	8 00
96	Perry, J. B, police	8 00
97	Warner, F., police	8 00
98	Boyler, L., police	8 00
99	Murray, N. B., police	8 00
100	Hall, C., police	6 00
101	Comstock, P., assistant marshal	10 00
102	Reeve, Wm., police	8 00
103	Shumway, E., police	8 00
104	Mathews, H., police	8 00
105	Zuill, J., police	8 00
106	Bean, F. M., police	8 00
107	Clapp, G. W., police	8 00
108	Bull, J., police	8 00
109	Atkinson, S., police	8 00
110	Moses, A., assistant superintendent	17 50
111	Taylor, J. H., night watch	10 00

No. of order.	To whom and for what.	Amount.
112	Welch, J., police	$8 00
113	Stilson, Eli, superintendent	24 00
114	Laughlin, P. C., police	8 00
115	Demning, A. M., police	8 00
116	Roberts, F., police	10 00
117	Arnold, A. A., superintendent	32 00
118	Stilliard, A., police	10 00
119	Dodge, P., police	8 00
120	Potter, C. S., police	8 00
121	Calkins, J. L., police	8 00
122	Weaver, W. K., assistant marshal	14 00
123	Dunbar, D. D., police	8 00
124	Boyle, J., police	8 00
125	Wood, A., assistant marshal	30 00
126	Roper, J. A., assistant superintendent	21 00
127	Clark, D. J., assistant superintendent	21 00
128	Clark, S., Jr., assistant superintendent	21 00
129	Clark, A. R., assistant superintendent	21 00
130	Smiley, J., assistant superintendent	21 00
131	Haaff, F., assistant superintendent	21 00
132	Clark, Satterlee, superintendent	48 00
133	Baer, Della, premium	5 00
134	Joiner, A. and G., premium	79 00
135	Lass, W. B., assistant superintendent	12 50
136	Howe, F. D., premium	110 00
137	Daubner, G., premium	15 00
138	Bean, Wm., premium	20 00
139	Patterson, J., premium	20 00
140	Reid, Wm., premium	59 00
141	Wells, W. L., premium	80 00
142	Hazen, C., superintendent	32 00
143	Hazen, C., premium	155 00
144	Eaton, J. O., superintendent	20 00
145	Seymour, premium	23 00
146	Herman, A., labor	12 00
147	Hindoff, N., premium	20 00
148	Reese, P., premium	60 00
149	Waters, R., premium	25 00
150	Williams, J. C., premium	180 00
151	Barrow Bros., premium	40 00
152	Barrow Bros., premium	10 00
153	Hillman, D. H., premium	65 00
154	Carver, A. H., premium	10 50
155	Featherstone, H., assistant superintendent	21 00
156	Baker, J. W., assistant superintendent	21 00
157	Martin, C. L., superintendent	24 00
158	Drakel, L., premium	70 00
159	Drakel, L., premium	30 00
160	Boyce, A. A., superintendent	48 00
161	Wheeler, W., premium	2 00
162	Bemis, Wm., assistant superintendent	10 00
163	Butcher, G. G., premium	20 00
164	Warren, J. H., marshal	40 00
165	Wilcox, C., police	7 00
166	Warren, C., premium	4 00
167	Dalrymple, J., premium	45 00
168	Rockwood, B. C., premium	30 00
169	Sherman, A., assistant superintendent	3 00
170	Wood, J. W., premium	78 00

No of order.	To whom and for what.	Amount.
171	Heywood, V., police	$8 00
172	Jeffries, G., premium	26 00
173	Jeffries, B. A., assistant superintendent	24 50
174	Peffer, B. C., premium	54 00
175	Sylvester, C., police	6 00
176	Pierce, A. J., assistant superintendent	51 00
177	Hawley, D., premium	63 50
178	Bagley, W., police	10 00
179	O'Keefe, D., police	12 00
180	Fratt, N. D., president's expenses	64 00
181	Calkins, J. S., police	6 00
182	Bates, Mrs. A. C., premium	5 00
183	Randall, A., premium	91 00
184	Fox, A. O., premium	50 00
185	Williams, D., assistant superintendent	17 50
186	McDougal, G. W., assistant superintendent	35 00
187	Baldwin, C., assistant superintendent	32 00
188	Broder, Paul, assistant superintendent	17 50
189	Doubleday, Geo., premium	120 00
190	Baker, Geo., premium	60 00
191	Crouch, S., premium	10 00
192	Taylor, Lizzie, premium	6 50
193	Kelley, L. S., premium	8 00
194	Kelley, S. A., premium	5 00
195	Lawrence, F. S., premium	16 50
196	Osborn, J., premium	8 00
197	Peffer, Kate, premium	26 50
198	Peffer, J. L., premium	9 00
199	Freeman, C. H., premium	24 00
200	Lawes, N., premium	28 50
201	Reynolds, F., premium	23 50
202	Primrose, Geo., premium	24 00
203	Tuttle, A. G., premium	17 00
204	Mosher, D., premium	24 00
205	Malone, A., premium	69 00
206	Herrick, H. W., premium	13 00
207	Gilbert, H., balloon	63 00
208	Cochran, B., balloon	5 00
209	Roche, Geo., balloon	6 00
210	Gilbert, H., balloon	25 00
211	Fox, Arthur, assistant superintendent	28 00
212	Field, W. W., superintendent	52 00
213	Jones, Mrs. A. R., assistant superintendent	31 50
214	Heimstreet, E. B., treasurer's clerk	17 50
215	Bates, J. W., treasurer's clerk	17 50
216	Couch, W. H., premium	40 00
217	Dexford, C. E., premium	4 00
218	Booth, Kate, premium	1 00
219	Pilgrim, D. T., premium	36 00
220	Smith, H. A., treasurer's clerk	17 50
221	Hopkins, A. A., treasurer's clerk	10 50
222	Pilgrim, D. T., premium	14 00
223	O'Keefe, D., premium	2 00
224	Void	.....
225	Morrison, W. H., treasurer's clerk	14 00
226	Main, A. H., assistant treasurer	25 25
227	Hall, A. J., treasurer's clerk	14 00
228	Atwood, C., treasurer's clerk	17 50
229	Miner, C., use of horse and buggy	10 00

No. of order.	To whom and for what.	Amount.
230	Miner, C., services and sundries	$35 10
231	Smith, S. B., treasurer's clerk	17 50
232	Curtis, Dexter, premium	268 00
233	Gray, H. C., premium	20 00
234	Comstock, C. T., premium	15 00
235	Pilgrim, D. T., premium	83 00
236	Sutherland, C	10 00
237	Hook Bros., premium	30 00
238	Owens, J. E., premium	33 00
239	Hook & Son, premium	42 00
240	Cutter & Palmer, premium	4 00
241	Seymour, M., premium	5 00
242	Harris, W., premium	10 00
243	Baker, C., premium	25 00
244	Rand, H. H., assistant superintendent	17 50
245	Scribner, H., premium	6 00
246	Breidenbach, M., premium	3 00
247	Boyce, Asa, premium	8 50
248	Spevelin, A., sundries	8 00
249	Main, A. H., dinner tickets	73 00
250	Drew, N. W., premium	21 00
251	Baxter, S. W. clerk	27 00
252	Baker, J. H. D., use of crockery	24 65
253	Chipman, A., premium	6 00
254	Chipman, A., premium	11 33
255	Datel, A. L., premium	17 00
256	Billings, C. H., premium	2 00
257	Chandler, J. C., assistant marshal	16 50
258	Stone, Wm., goods	8 60
259	Tousley, B., clerk	13 25
260	Waldron, N. H., premium	2 00
261	Paul, Ella, premium	1 00
262	Cooper, C., labor	4 10
263	Cooper, C., labor	6 00
264	Clyse, Georgia, clerk	14 00
265	Camack, C. W., clerk	14 00
266	Webb, G. W., dinner tickets	48 33
267	Kentzler, A., livery	7 00
268	Horton, Geo., premium	20 50
269	Horton, Geo., clerk	5 00
270	Williams, J. C., premium	19 00
271	Plumb, J. C., premium	3 00
272	McCloud, Martha, premium	3 00
273	Daily, W., labor	10 00
274	Holmes, Wm., premium	15 00
275	Hadden, J., premium	20 00
276	Dunlap, L., premium	7 00
277	Riley & Co, livery	30 50
278	Baker, R. J., use of engine	50 00
279	Potter, J. M., premium	2 00
280	Pattin, L. J., premium	2 00
281	Draxel, B., premium	10 00
282	Field, W. W., premium	7 00
283	Woodbury, M., premium	30 50
284	Bruce, J. F., dinner tickets	25 00
285	Waterbury, J. C., premium	3 00
286	Miller, J. C., premium	35 00
287	Morgan, M., forage	20 75
288	Conover, H., premium	12 50

No. of order.	To whom and for what.	Amount.
289	Nelson, D. T., premium	$21 00
290	Morse, J. W., premium	40 00
291	Hook, W. W., premium	1 50
292	Burgess, J. E., premium	7 00
293	Greenbush, N. N., premium	25 00
294	Mathews, J., premium	10 00
295	Fuller, F. L., clerk	15 00
296	Main, G. F., premium	7 00
297	Morrow, P. W., premium	3 00
298	Taft, A. C., labor	1 50
299	Mulligan, J., labor	18 00
300	Weymer, N., premium	10 00
301	Bradley, C., dinner tickets	1 30
302	Void	
303	Hazen, Julia, premium	4 50
304	Vilas, F., premium	11 00
305	Joy, Mrs. John, premium	10 50
306	Voorhies, J., premium	4 00
307	Kiser Bros., premium	260 00
308	Kiser, N. W., premium	10 00
309	Kiser, J. C., premium	20 00
310	Stewart, J. K., premium	53 00
311	Hawes, J., dinner tickets	4 65
312	Fuller, Ada, premium	2 00
313	Simmons, W. A., premium	5 00
314	Palmer, N. M., premium	103 00
315	Hutchinson & Brown, premium	1 50
316	Baker, G. W., premium	5 50
317	Bicker, F., premium	5 00
318	Margarum, Geo., premium	10 00
319	Evenson, Geo., premium	20 00
320	Lamb, G. M., premium	15 00
321	Wheeler, W. P., premium	27 00
322	Niam, A., premium	1 00
323	Goodrich, C. P., premium	20 00
324	Heimstreet, E. B., premium	14 00
325	McHoul, Arend & Co., premium	20 00
326	Little, Jennie, premium	2 00
327	Fenno, C. W, premium	10 00
328	Floer, G. C., premium	2 00
329	Jones, J. N., goods	2 15
330	Wildhagen, Carrie, premium	19 50
331	Moses, A., labor	7 50
332	Chambers, E. L., premium	4 00
333	Hall, S. H., premium	20 00
334	Hall, S. H., premium	4 50
335	Hall, S. H., clerk	14 00
336	Meyers & Steinle, dinner tickets	1 30
337	Slightam, C. F., dinner tickets	2 00
338	Fristermann, H., premium	1 00
339	Hamilton, Wm., dinner tickets	1 65
340	Moffat, Robt., dinner tickets	90 00
341	Ashard, W. H., dinner tickets	11 65
342	Milderbrand, L., premium	2 00
343	Grady, F. M., hay	18 30
344	Grady, G. W, straw	24 90
345	Moseley Bros., paper	1 15
346	Kitzerow, Wm., premium	51 50
347	Freeborn, C. B, premium	12 00

No. of order.	To whom and for what.	Amount.
348	Moore, John, premium	$2 00
349	Rutherford, J., premium	24 00
350	Corscot, Julia, premium	3 50
351	McLaughlin, Ellen, labor	10 00
352	Miner, C., sundries	6 90
353	Baker, J. W., labor	22 25
354	Harper, Wm., clerk	2 00
355	Bristol, Mrs. W. F.	7 00
356	Dean, E. W., clerk	24 50
357	Dean, E. B., clerk	1 00
358	Terwilliger, J., premium	6 00
359	Hill, Irena, telegraph operator	15 00
360	McKee, D. W., hay	11 10
361	Stuart, L. K., premium	10 00
362	Brookhart, L., premium	1 00
363	Tipple, E. F., premium	10 00
364	Lester, E., premium	2 50
365	McKinna, Mrs., hay	37 20
366	Conklin & Gray, coal	6 00
367	Warner, W. C., premium	13 50
368	Williams, Mrs., premium	9 00
369	Dean, N. W., straw	64 70
370	O'Keefe, D., police	6 00
371	O'Keefe, D., labor	1 50
372	Cummings, J., labor	35 00
373	Sherer, Geo., band	150 00
374	Vanduzen, A., labor	28 50
375	Crampton, T., hay	29 30
376	Flom, W. H., premium	11 60
377	Crampton, W. B., police	8 00
378	Bicker, Wm., labor	18 00
379	Jones, J. N., hardware	36 56
380	Jones, J. N., premium	10 00
381	Void.	
382	Howell, J. F., labor	1 00
383	Leitch, W. T., premium	4 00
384	Housman, Mrs. J., premium	2 50
385	Howell, J. F, labor	21 50
386	Vanduzen, A., carpenter	26 25
387	Dolan, J., carpenter	29 75
388	Bishop, A., sprinkling	23 00
389	Bishop, A., chief police	50 00
390	Void.	
391	Harvey, J. W., hay	17 70
392	Ramsey & Frank, goods	28 13
393	Atwood, David, printing	150 65
394	Cox, A., premium	10 00
395	Fish & Co., lumber	150 00
396	Paine, F. B., hay	16 50
397	Paine, F. B., hay	134 55
398	Paine, F. B., hay	64 45
399	Paine, F. B., hay	58
400	Leitch, W. T., clerk	17 50
401	Pitman, W. G., goods	10 65
402	Pitman, W. G., premium	5 00
403	Starkweather, J. C., whitewash	17 00
404	Hollister, A. H., premium	2 00
405	Canada West Stock Co., premiums	55 00
406	Parsons, Frank, premium	5 00

No. of order.	To whom and for what.	Amount.
407	Bemis, J., labor	$2 50
408	Void.	
409	Vanduzen, A., labor	14 00
410	Cody, J., labor	8 75
411	Lang, A., blacksmith	2 00
412	Bryant, H. A., labor	65 00
413	Moran, C. A., forage	50 56
414	Squires, S., labor	17 50
415	Gleason, H. J., assistant superintendent	4 00
416	Boyce, B., premium	49 00
417	Bryant, Geo. E., premium	35 00
418	Fitch & Co., premium	2 00
419	Myers, A., premium	9 00
420	Morgan, B. J., premium	6 00
421	Wait, Z., premium	4 00
422	Welch, Wm., premium	10 00
423	Memhard, F., cartage	4 77
424	Democrat Company, printing	34 50
425	Alcott, D., premium	11 00
426	Bennett, E. R., premium	18 00
427	Malcolm, J. B., premium	34 50
428	Alden, B. S., premium	1 50
429	Storms, Wm., premium	21 50
430	Hiner, Mrs., premium	3 00
431	Coleman, Mrs. E., premium	5 00
432	Muller, J. T., premium	18 50
433	Cantwell, M. J., printing	131 79
434	Buford, Wm. B., show bills	100 00
435	Hoard, W. D., printing	3 50
436	Parker, H. C., post bills	2 50
437	Smith, Sol., premium	1 00
438	Torneare, H., premium	27 00
439	Pardee, A. A., goods	2 20
440	Dean & Son, shavings	5 60
441	Waverly, G. W., premium	15 00
442	Haak & Haven, water pipe	3 00
443	Haak & Haven, water pipe	46 00
444	Haak & Haven, work on well	3 00
445	Sherman, H. B., premium	275 00
446	Salisbury, D. F., premium	6 00
447	Foster, P. J., premium	28 00
448	Collard, Chas., premium	45 00
449	Bowles, Thos., premium	20 00
450	Harrington, E., premium	20 00
451	Daubner, Geo. H., premium	75 00
452	Dore, J. S., superintendent	20 00
453	Fisher, Geo., assistant superintendent	21 00
454	Dore, J. S., premium	13 00
455	Walbridge, L. F., premium	8 00
456	Wheeler, Jere, police	6 00
457	McKey Bros., goods	2 52
458	Morgan, N., posters	108 00
459	Garlick, R. L., goods	3 28
460	Livesey, Miss S. J., premium	11 00
461	Dorn, M. M., livery	31 00
462	Brown, T., gas	75 00
463	Sheldon, S. L., machinery department	1 19
464	Sheldon, S. L., machinery department	2 00
465	Sheldon, S. L., machinery department	18 00

No. of order.	To whom and for what.	Amount.
466	Sheldon, S. L., machinery department	$25 00
467	Sheldon, S. L., over paid entry	3 00
468	Gay, Wm., premium	20 00
469	Root, C. N., premium	2 00
470	Root, C. N., premium	2 00
471	Wait & Son, premium	24 00
472	Slaughter, B. C., clerk	66 50
473	Bunker & Vroman, lumber	331 83
474	Sumner, J. W., goods	34 85
475	McFarland, H., labor	15 00
476	Gill, Eli, premium	3 00
477	Sherwin, J., ice	4 50
478	Otto, W. T., labor	20 00
479	Vanduzen, A., labor	1 25
480	Roberts, H. J., premium	2 50
481	Howe, Wm. P., premium	42 00
482	Simmons, W. A., premium	5 00
483	Bailey, N. K., premium	10 00
484	Harriman, M. H., hay	7 50
485	Storey, A. J., premium	60 00
486	Hartwood, J., premium	11 00
487	Hiestand, J., premium	4 00
488	Clark, C. W., premium	20 00
489	Lederer & Smith, premium	2 00
490	Schwab, Mary, premium	2 00
491	Spring, M. G., premium	9 00
492	Dick & Birch, premium	10 00
493	Canfield, J., premium	10 00
494	Atwood, R. J., premium	10 00
495	Kentzler, J., labor	12 50
496	Phillips, A. J., premium	26 00
497	Krounck, H. G., premium	2 15
498	Krounck, H. G., premium	5 00
499	Howdry, G. H., premium	60 00
500	Svenson, Thos., clerk	25 50
501	Chilcote, Mary, premium	4 00
502	Fitzpatrick, T., messenger	6 00
503	Bryant, Geo. E., office expenses	10 00
504	Welch, Wm., service, self and horse	30 00
505	Tice, N. W. & Co., premium	2 30
506	Main, A. G., premium	3 00
507	Hudson, J., expenses machinery department	48 50
508	B. F. Brown, premium	3 00
509	Bixby, J., premium	4 00
510	Laramy, T. W., premium	40 00
511	Huginin, W. C., premium	43 50
512	Quackenbush, G., premium	1 50
513	Bryant, George E., salary	900 00
514	Davey, P., premium	40 00
515	Barron, G. H., premium	2 00
516	Duclos, J. B., premium	10 00
517	Fowler, W. T., premium	30 00
518	Wilson, D., premium	22 00
519	Mills, R. H., premium	5 00
520	Garrett, G. W., premium	80 00
521	Palmer, J. N., premium	30 00
522	Nichols, J. H., express	1 70
523	Matts, J. H. B., premium	3 00
524	Judson, W., premium	22 00
525	Cook, George, work on medals	1 80

No. of order.	To whom and for what.	Amount.
526	Sevenson, S. H., premium	$5 00
527	Porter, W. H., premium	10 00
528	Allen, George, premium	8 50
529	Mason, L., gate attendance	2 00
530	Horton, C., premium	1 00
531	Newton, Mrs. E. W., premium	14 00
532	Smith, H., premium	20 00
533	Houston, R. L., premium	45 00
534	Keyes, E. W., postage	2 50
535	Tenney, H. A., assistant superintendent	20 00
536	Horbuck, J., premium	2 00
537	Cole, W., premium	1 50
538	Void	....
539	Keenan, William, police	3 00
540	Graves, J., premium	13 00
541	Slaughter, B. C., clerk	27 00
542	Pilgrim, D. T., premium	25 00
543	Curtis, D. W., premium	5 50
544	Morrison, H., premium	25 00
545	Keyes, E. W., postage	3 00
546	Root, D., police	2 00
547	Wood, J. W., premium	11 97
548	Durand, H. S., premium	106 50
549	Stowe, W. D., premium	26 65
550	Mosher Bros., premium	6 65
551	Deland, A. D., premium	6 65
552	Graves, L, premium	6 65
553	Gibson, C., premium	6 65
554	Grover, Caroline, premium	6 65
555	Juckem Co., premium	6 65
556	Kastra, A., premium	6 65
557	Karstedt, C. F. F., premium	6 65
558	Loomis & Lever, premium	6 65
559	Littlefield, S., premium	6 65
560	Levick, F., premium	6 65
561	Pierce Bros., premium	6 65
562	Mather Bros., premium	6 65
563	Weeden, B. W., premium	6 65
564	Hazen, C., premium	13 30
565	Judson, C., premium	25 00
566	Cook, Geo., engraving	1 80
567	Cook, C.	15 00
568	Poor, Wm., goods	4 50
569	Booth, W. A., express	3 70
570	Amberger, J., premium	3 00
571	Taylor, Wm., premium	3 00
572	Bigelow, L. F., premium	17 00
573	McEwan, —, premium	2 00
574	Humbert, A. & P., premium	50 00
575	Battles, G. F., premium	10 00
576	Howe, J., premium	5 00
577	Curtis, F. C., premium	2 00
578	Sanford, G W., premium	25 00
579	Martin, F. N., premium	2 00
580	Doane, P. B, premium	4 00
581	Atwood. R. J., premium	4 65
582	Fisher, J. E., premium	14 25
583	Smith, N. S., premium	1 00
	Total amount of orders	$14,471 62

Total amount of orders	$14,471 62
Paid dinner tickets	218 66
Paid orders, 1878	122 00
Amount in 4 per cent. government bonds	2,000 00
Balance on hand	831 08
	$17,643 36
Orders drawn and not presented at date of this report, 188, 339, 364, 394, 516, 543, 553, 555, 557, 561, 565, 566, 572, 579, 580, 581, 582 and 583	142 95
	$17,500 41

There is an indebtedness of $3,500, and accrued interest of $315, due March 1, 1899, secured by mortgage on the fair grounds.

On motion of Hon. E. W. Keyes, the chair appointed the following committee to examine said report, and compare the same with the books of the secretary and the vouchers therefor: A. H. Main, Dexter Curtis and M. J. Cantwell.

The committee, after a full examination of all vouchers, books, etc., reported as follows:

The committee appointed to examine the vouchers of the treasurer and compare them with the books of the secretary, beg leave to report that we have discharged that duty, having compared the vouchers with the report and with the orders drawn, and find them correct.

All of which is respectfully submitted,

A. H. MAIN,
DEXTER CURTIS,
M. J. CANTWELL,
Committee.

On motion of Dr. Wm. Jacobs, the report was unanimously adopted.

On motion, the society adjourned.

EXHIBITION OF 1879.

OPENING ADDRESS.

By Hon. N. D. FRATT, President.

Fellow Citizens and Members of the State Agricultural Society — Another year has rolled around since our last meeting on these grounds. Another harvest has been gathered for future use, and now it is eminently proper that the farmers, mechanics, manufacturers, merchants and representatives of all the industries of the state should meet in this annual gathering of the society at this our state fair. Especially should the farmers be here. This is *their* jubilee, and almost the only one they have. We have ploughed the ground, have sown the seed, and reaped the harvest. Our hopes and cares, anxieties and fears (and labors thus far), are things of the past. A breathing spell, a short period of recreation has been reached. We can now look forward to the close of the agricultural year, measurably sure of the results. It is well, then, that we should thus gather from all parts of our magnificent state; free from toil, throwing off our cares, bent on cheerful enjoyment, yet awake to every chance of improvement, and what oportunities for pleasure and profit are here. I must repeat what I said here last year, that in my humble opinion, in the length and breadth of this land, there are no educational influences at work that will compare in extent, variety and power with those that are operative on these grounds, here and now. These fairs awaken emulation and fellowship; they diffuse knowledge of the best methods of successful farming, and of all new and useful farm implements. Here are brought the choicest products of the soil. Here improved breeds of horses, cattle, sheep and swine are exhibited to all. I have not now time to enter

into any detail of this numerous display, but I will say that in all its departments it has never been excelled in this state. The present season has been, on the whole, a prosperous one. Spring wheat is certainly much better both in quantity and quality than it was last year. Oats, barley and flax are all good; potatoes are more than an average yield, and the corn crop promises to be excellent; while winter wheat surpasses all expectations. I suppose it has never been equalled in our state. We may safely estimate the yield at from twenty to forty bushels per acre.

Our life is one of ever recurring changes; now elevated by success where we had no hope of it, and now disappointed where we were most sure. Amid these vicissitudes, however, it is most cheering to note the evidences of a steady improvement in the mental status of the agriculturist which must be apparent to all. This improvement is shown in many ways; in increasing interest in agriculture as a science; in quickened mental activity, which demands its food and stimulus in agricultural literature of all kinds — books, newspapers and the transactions of *this* and kindred societies. This higher mental plane is also evidenced by the growing inclination to employ money, business energy and enterprise which are so successfully employed in other departments of business, and without which all commercial and manufacturing enterprises inevitably end in failure. But in nothing is this intellectual activity shown to be so manifestly beneficent to the agriculture of the present era, as in the adoption of improvements in all kinds of farm implements. Of such improvements let us instance but one as an example. The sickle of our grandfathers gave way to the cradle of the next age. The cradle is followed by the reaper. Then to this is attached the self-rake. Still later, to facilitate and economize the harvest work, the same machine is provided with apparatus for instantaneous binding of the sheaves. Thus the toil of nearly a score of men is accomplished in comparative comfort by one man.

The greater use of brain power in our day is also shown in the economical adaptation of means to ends in managing large farms. Large farms seem a common if not a necessary attendant upon the rapid settlement and opening to the world of the great agricul-

tural region of the northwest. Think for a moment of farms ranging from 4,000 to 50,000 acres; of one man harvesting 100,000 bushels of wheat; of one day's work in harvesting in one field, resulting in the transfer from the standing grain to the sack, sowed and ready for market, of 6,183 bushels of clean wheat. These facts, brought to my knowledge during an extended trip through the state of California, are notable instances of human energy and comprehensiveness, using the needed capital and the best implements in bringing about great results; and such action may be of use in developing the country, in inducing immigration, and in preparing the way for the thousands of farmers of limited means who must eventually occupy these fertile tracts. But do not understand me as advocating such enterprises generally, or holding them before you as examples. They may be immensely profitable. They are just as likely to result in utter ruin. What if I should tell you that the man who harvests his 100,000 bushels of wheat is not able to pay his debts. It is indeed generally admitted that this mode of farming is not financially a success. Then let us consider how this increased mental power of farmers, of which we have been talking, may be applied in securing great results more permanently from small or medium sized farms; for this most directly affects us. Small farms bring us near together; fill our country with intelligent producers; build churches and school-houses and fill them; make good roads; produce a mixed husbandry, which is the best for us, because it renders us in a degree independent of disastrous seasons; give better results in proportion to the capital invested; have a tendency to create a strong love for our homes and country, and produce an intelligent, prosperous, well ordered community.

Let us now look a little at our prospects for the near future. We should not rejoice at the misfortunes of our fellow men, even though we profit thereby; but we should *surely* feel satisfaction when our abundance supplies their necessities. The condition of crops in Europe is such the present season, that a large demand will be made upon us for our surplus breadstuffs. We shall be abundantly able to supply this call. It is expected that the wheat crop of this year will be for us at least 385,000,000 bushels.

France will have to import 80,000,000 bushels; Great Britain 120,000,000 bushels; Germany 10,000,000 bushels; Switzerland 10,000,000 bushels; Italy 25,000,000 bushels; Spain and Portugal 5,000,000 bushels. We must contribute largely to supply this great need. Russia is our only competitor, and her wheat crop is to some extent a failure. So there will be a demand for all we can supply. Already the crop is moving. One million bushels were recently shipped in one day from New York to England; all of it from Milwaukee and Chicago. Our oats are splendid. The corn crop is so great that our farmers will hardly be able to find places to hold it. This coarse grain will mostly be fed to stock, and no better use could be found for it. Then this grain will go to Europe in the more economical form of beef, pork and mutton. The rapidly increasing demand for our meat products is something wonderful. The production of cattle in the European states is steadily decreasing. Great excitement exists in regard to a supply, notwithstanding the enormous shipments lately made to England of live stock and fresh meats. And although so many workmen are there thrown out of employment, there is no reduction in the price of butchers' meat, and the supply is falling short of the demand. Not only in Great Britain is this the case, but most of the countries in Europe are in the same condition. All this, of course, furnishes us a market for our overplus at good prices, and is for us prosperity; and though a great part of our immense territory contributes to this supply, yet we share in direct gains, and as members of one great family are indirectly benefited in hundreds of ways by the general prosperity. Although we send this produce at remunerative prices to us, and ruinous prices to the producers abroad, yet to the consumers it comes as a blessing.

In regard to our efforts to compete with these countries in the production of their own staples, as it is all important to our prosperity, I will say a few words more, and adduce a very few statistics. A late number of the London *Agricultural Gazette* says: "English bacon, cheese and butter are driven out of our shops by American importations. Birmingham manufacturers have been startled by London builders declaring their preference

for American locks. One day the cattle growers of Ireland and the sheep stockers of Scotland are startled by fleets that sail into Liverpool with fresh meat and live stock. The fruit growers of Kent see their Ribston Pippins encroached upon by Baldwins and Rhode Island Greenings."

Instead of a few notions exported a few years ago, the exports in 1878 amounted to over $700,000,000. Last year the increase of exports was close upon $100,000,000. We also monopolize largely our own markets and exclude from them the European producer. We are showing also a wise economy in lessening our imports.

Gen. Joseph Nimmo, chief of the Bureau of Statistics at Washington, gives us a few most telling figures on this subject. In 1865 our exports amounted to $166,029,303; imports, $238,745,277; excess of imports (mind you), $72,716,277. Thus you will see the balance of trade at that time was nearly $73,000,000 against us. Our exports steadily increased and our imports relatively decreased from that time to the present. In the year 1879, ending June 30, the exports — $700,428,743 — exceeded the imports $264,636,602. In 1870, we spent abroad $143,186,640 more than we received; while in 1879, to June 30, our receipts exceeded our expenditures $264,636,602.

Now, in conclusion, the question for us in Wisconsin is, How shall we derive most benefit from the coming tide of prosperity? We must modify our farming, so that grain shall be grown largely for the feeding of stock. We must not grow the same round of crops year after year, taking all from the land and putting scarcely anything back. We must contrive every means to keep up the fertility of our farms. The richest system in the application of manures is the best system, and this can be maintained only by a judicious balance of stock raising with the growth of hay and the grains. We must have a varied agriculture, suited to our locality. We must grow more beef, pork and mutton, and, I repeat, our farms must be richly fed through the keeping of stock.

The experience of the past season has demonstrated the importance of raising more winter and less spring wheat. Returns thus far fully justify such change.

Finally, my friends, let us be satisfied to live in this beautiful and fertile state of ours, as desirable, all things considered, as the sun shines upon. Let not the discouragements of the year just passed lead us to wish new homes elsewhere. "The rolling stone gathers no moss." Let us remember that the Almighty has given us this soil we live on. It is ours; for us and for our children. It is ours to develop, to beautify, and make more productive. We are co-workers of the Great Giver, working in accord with His laws; and of these laws is the science of agriculture, adding to the beauty, to the productiveness, and the greatness of our state. Thinking thus, we shall honor and dignify our calling, and grow wiser and better and happier men.

Happy the man whose wish and care
A few paternal acres bound;
Content to breathe his native air
In his own ground.

Whose herds with milk, whose fields with bread,
Whose flock supply him with attire;
Whose trees in summer yield him shade,
In winter, fire.

And now, my friends, I will detain you no longer. I thank you for your attention, and will now declare this twenty-sixth annual fair open to the public. It is yours to enjoy.

PREMIUMS AWARDED.

DEPARTMENT A. — HORSES.

CLASS 1. — *Roadsters.*

Best stallion 4 years old and over, ten exhibits, J. M. Shafer, Madison,	$20 00
Second best, J. T. Hidden, Lodi	10 00
Best stallion 3 years old and under 4, five exhibits, Ed. Kindorf, Racine,	20 00
Second best, Geo. Everson, Lake Mills	10 00
Best stallion 2 years old and under 3, two exhibits, D. T. Newton, Verona	20 00
Second best, A. Cox, Madison	10 00
Best stallion 1 year old and under 2, three exhibits, A. J. Storey, Oregon	10 00
Second best, Albert Randall, Hustisford	5 00
Best sucking stallion foal, five exhibits, M. P. Wheeler, Windsor	10 00
Second best, C. L. Comstock, Oregon	5 00
Best brood mare 4 years old and over with foal by her side, five exhibits, A. J. Storey, Oregon	15 00
Second best, M. P. Wheeler, Windsor	10 00
Best filly 3 years old and under 4, five exhibits, Geo. M. Leonard, Door Creek	15 00
Second best, A. J. Storey, Oregon	10 00
Best filly 2 years old and under 3, ten exhibits, Albert Randall, Hustisford	15 00
Second best, C. L. Comstock, Oregon	10 00
Best filly 1 year old and under 2, six exhibits, N. R. Bailey, Sun Prairie	10 00
Second best, H. W. Herrick, East Middleton	5 00
Best sucking filly foal, four exhibits, Joseph Patterson, Mazomanie	10 00
Second best, M. P. Wheeler, Windsor	5 00
Best stallion and five of his colts at 4 years old or under, two exhibits, A. J. Storey, Oregon, Wis	25 00

CLASS 2. — *Horses for all work.*

Best stallion 4 years old and over, nine exhibits, J. C. Kiser, Oregon	$20 00
Second best, G. W. Fenno, Lodi	10 00
Best stallion 3 years old and under 4, six exhibits, E. Durham, Reedsburg	15 00
Second best, Wm. M. Colladay, Stoughton	7 00
Best stallion 2 years old and under 3, six exhibits, Dexter Curtis & Co., Madison	8 00
Second best, E. E. Crow, Dane Station	4 00
Best stallion 1 year old and under 2, three exhibits, Reuben Boyce, Brooklyn	5 00
Second best, L. F. Biglow, Brooklyn	3 00
Best sucking stallion foal, five exhibits, Reuben Boyce, Brooklyn	4 00
Second best, John Moore, Mendota	2 00
Best brood mare 4 years old and over, with foal by her side, nine exhibits, H. O. Gray, Oregon	15 0

Second best, S. Dunlap, Token Creek $7 00
Second best filly 3 years old and under 4, Chester Sutherland, Syene, 6 00
Best filly 2 years old and under 3, eight exhibits, L. J. Walbridge, Cottage Grove..... 8 00
Second best, Aaron Meyers, Verona..... 4 00
Best filly 1 year old and under 2, six exhibits, Aaron Meyers, Verona. 5 00
Second best, M. P. Wheeler, Windsor..... 2 00
Best sucking filly foal, five exhibits, H. O. Gray, Oregon..... 5 00
Second best, M. P. Wheeler, Windsor..... 2 00

CLASS 3.— *Draft Horses* (Norman).

Best stallion 4 years old and over, one exhibit, Thomas Bowles, Janesville..... $20 00
Best stallion 3 years old and under 4, one exhibit, J. Dalrymple, Dayton..... 20 00
Best stallion 2 years old and under 3, one exhibit, S. H. Severson, Stoughton 20 00
Best stallion 1 year old and under 2, one exhibit, Robert Wilson, Okee 10 00
Best brood mare 4 years and over, with foal by her side, one exhibit, J. Dalrymple & Son, Dayton, Wis..... 15 00
Best filly 3 years old and under 4, one exhibit, J. W. Morley, Ableman..... 15 00
Best filly 2 years old and under 3, five exhibits, Robert Wilson, Okee, 15 00
Second best, J. B. Duclos, Glendale, Wis..... 10 00
Best filly 1 year old and under 2, one exhibit, Joseph Patterson, Mazomanie..... 10 00
Best sucking filly foal, one exhibit, J. Dalrymple & Son, Dayton, Wis. 10 00

CLASS 4. — *Draft Horses* (Clydesdale and others).

Best stallion 4 years old and over, eight exhibits, Canada West Stock Association, Brantford, Canada West $20 00
Second best, George Margesum, Madison..... 10 00
Best stallion 3 years old and under 4, seven exhibits, W. & R. Moffatt, Paw Paw, Ill..... 20 00
Second best, Dexter Curtis & Co., Madison..... 10 00
Best stallion 2 years old and under 3, eight exhibits, Dexter Curtis & Co., Madison 20 00
Second best, W. & R. Moffatt, Paw Paw, Ill..... 10 00
Best stallion 1 year old and under 2, three exhibits, Reuben Boyce... 10 00
Second best, Wm. Holm..... 5 00
Best sucking stallion foal, seven exhibits, W. & R Moffatt, Paw Paw, Ill. 10 00
Second best, W. & R. Moffatt, Paw Paw, Ill..... 5 00
Best brood mare 4 years old and over with foal by her side, ten exhibits, Canada West Stock Association, Brantford, C. W.. ..... 15 00
Second best, W. & R. Moffatt, Paw Paw, Ill..... 10 00
Best filly 3 years old and under 4, three exhibits, Dexter Curtis & Co., Madison 15 00
Second best, Dexter Curtis & Co., Madison 10 00
Best filly 2 years old and under 3, four exhibits, W. & R. Moffatt, Paw Paw, Ill..... 15 00
Second best, Wm. Holm, Madison 10 00
Best filly 1 year old and under 2, three exhibits, W. & R. Moffatt, Paw Paw, Ill 10 00
Second best, Dexter Curtis & Co., Madison..... 5 00
Best sucking filly foal, two exhibits, W. & R. Moffatt, Paw Paw, Ill.. 10 00
Second best, Dexter Curtis & Co., Madison..... 5 00
Best stallion and five of his colts at 4 years old and under, three exhibits, Reuben Boyce, Brooklyn, Wis..... 25 00

CLASS 5. — *Matched Horses and Mares.*

Best pair carriage horses or mares not less than fifteen and one-half hands, seventeen exhibits, W. Bear, Spring Green $20 00
Second best, S. Crouch, Baraboo..... ..... 10 00
Best pair of roadsters, sixteen exhibits, Dexter Curtis, Madison..... 20 00
Second best, O. F. Tipple, Stoughton 10 00
Best pair of Clydes, nine exhibits, Canada West Stock Association, Brantford, Canada West 20 00
Second best, Dexter Curtis & Co., Madison 10 00

CLASS 6. — *Geldings or Mares for Single Harness.*

Best gentleman's roadster for single harness, 4 years old and over, thirty-two exhibits, G. W. Garrett, Madison $20 00
Second best, J. T. Hidden, Lodi..... .... 10 00

Special Premiums by Park Hotel, Madison, Wis.

Best thoroughbred stallion, any age, shown by bridle, six exhibits, E. G. Butcher, Camanche, Iowa $20 00
Second best, W. H. Cook, West Point, Wis..... 10 00
Best thoroughbred mare, any age, shown by bridle, one exhibit, Sam. Drakeley, Madison, Wis 15 00

CLASS 7. — *Horses for Speed.*

Vilas House Purse. Novelty Running Race. Single Dash of a Mile and a half. Purse, $200.

First premium, F. L. Stone, "Simple Simon" $110 00
Second premium, Sam'l Drakeley, "Beachwood" 40 00
Third premium, R. C. Rockwood, "John McCormick"..... 30 00
Fourth premium, Wm. Wells, "Big Injun" 20 00

Trotting — Mile Heats — Time, 3 Minutes. Purse, $100.

First premium, Geo. Garrett, "Mark Twain"..... ..... $60 00
Second premium, J. V. Palmer, "Golden Charley"..... 30 00
Third premium, R. Drakeley, "Cooper"..... ..... 10 00

Running — Mile Heats — Purse $100.

First premium, S. C. Williams, "Jim Murphy"..... $60 00
Second premium, Barrow Bros., "Lucky" 30 00

Trotting — Time 2 : 35 *— Purse* $200.

First premium, Geo. Doubleday, "Resolute" $120 00
Second premium, Peter Reese, "Dictator"..... 60 00

Running Race — Two mile Heats — Purse $200.

First premium, S. C. Williams, "Jim Murphy"..... .....$120 00
Second premium, W. L. Wells, "Big Injun"..... 60 00

Running Race — Consolation Purse $100.

First premium, Sam'l Drakeley, "Adele" $50 00
Second premium, W. H. Cook, "Marlborough..... 30 00
Third premium, Barrow Bros, "Gallantry"..... 20 00

DEPARTMENT B. — CATTLE.

CLASS 8. — *Short-Horns.*

Best bull 4 years old and over, three exhibits, H. B. Sherman, Burnett Junction	$25 00
Second best, Dexter Curtis & Co., Madison	15 00
Best bull 3 years old and under 4, five exhibits, Kiser Bros., Oregon	25 00
Second best, Kiser Bros., Oregon	15 00
Best bull 1 year old and under 2, six exhibits, Kiser Bros., Oregon	25 00
Second best, Chas. Collard, Linden, Wis	15 00
Best bull calf over 6 and under 12 months, five exhibits, H. B. Sherman, Burnett Junction	10 00
Second best, Chas. Collard, Linden, Wis	5 00
Best bull calf under 6 months, four exhibits, Kiser Bros, Oregon	10 00
Second best, Chas. Collard, Linden, Wis	5 00
Best cow four years old and over, 10 exhibits, Dexter Curtis & Co., Madison	20 00
Second best, H. B. Sherman, Burnett Junction	10 00
Best cow 3 years old and under 4, twelve exhibits, H. B. Sherman, Burnett Junction	20 00
Second best, Dexter Curtis & Co., Madison	10 00
Best heifer 2 years old and under 3, five exhibits, Dexter Curtis & Co., Madison	20 00
Second best, Kiser Bros., Oregon	10 00
Best heifer 1 year old and under 2, nine exhibits, Kiser Bros., Oregon	20 00
Second best, H. B. Sherman, Burnett Junction	10 00
Best heifer calf, over 6 and under 12 months, nine exhibits, H. B. Sherman, Burnett Junction	10 00
Second best, Dexter Curtis & Co., Madison	5 00

CLASS 9. — *Devons.*

Best exhibition not less than five head, four exhibits, Geo. Baker, Hustisford	$60 00
Second best, J. W. Morse, East Middleton	40 00
Third best, E. Houston, Fond du Lac	20 00

CLASS 10. — *Ayrshires.*

Best bull 3 years old and over, three exhibits, C. Hazen, Ladoga	$20 00
Second best, D. Huntley	10 00
Best bull 2 years old and under 3, two exhibits, Joseph Johnson, Hartland	20 00
Second best, C. Hazen, Ladoga	10 00
Best bull 1 year old and under 2, one exhibit, Joseph Johnson, Hartland	20 00
Best bull calf over 6 and under 12 months old, three exhibits, Joseph Johnson, Hartland	10 00
Second best, D Huntley	5 00
Best bull calf under 6 months, five exhibits, D. Huntley	10 00
Second best, Joseph Johnson, Hartland	5 00
Best cow 3 years old and over, nine exhibits, C. Hazen, Ladoga	15 00
Second best, C. Hazen, Ladoga	10 00
Best heifer 2 years old and under 3, five exhibits, C. Hazen, Ladoga	15 00
Second best, C. Hazen, Ladoga	10 00
Best heifer 1 year old and under 2, eight exhibits, Joseph Johnson, Hartland	15 00
Second best, C. Hazen, Ladoga	10 00
Best heifer calf over 6 and under 12 months, five exhibits, C. Hazen, Ladoga	10 00
Second best, Joseph Johnson, Hartland	5 00
Best heifer calf under 6 months old, four exhibits, D. Huntley	10 00
Second best, C. Hazen, Ladoga	5 00

CLASS 11. — *Jerseys.*

Best bull 3 years old and over, four exhibits, H. S. Durand, Racine.. $20 00
Second best, N. N. Palmer, Brodhead..... 10 00
Best bull 2 years old and under 3, five exhibits, C. Hazen, Ladoga.... 20 00
Second best, John S. Dore, Neillsville 10 00
Best bull 1 year old and under 2, six exhibits, Wm. Gay, Blooming Grove 20 00
Second best, N. N. Palmer, Brodhead..... 10 00
Best bull calf over 6 and under 12 months, eight exhibits, H. S. Durand, Racine..... 10 00
Second best, Geo. E. Bryant, Madison..... 5 00
Best bull calf under 6 months, four exhibits, N. N. Palmer, Brodhead 10 00
Second best, Geo. E. Bryant, Madison..... 5 00
Best cow 3 years old and over, ten exhibits, N. N. Palmer, Brodhead, 15 00
Second best, H. S. Durand, Racine.. ..... 10 00
Best heifer 2 years old and under 3, six exhibits, Horatio Merriman, Fort Atkinson 15 00
Second best, H. S. Durand, Racine..... 10 00
Best heifer 1 year old and under 2, seven exhibits, Geo. E. Bryant, Madison..... 15 00
Second best, Geo. E. Bryant 10 00
Best heifer calf over 6 and under 12 months, five exhibits, N. N. Palmer, Brodhead..... 10 00
Second best, H. S. Durand, Racine..... 5 00
Best heifer calf under 6 months, two exhibits, Wm. Welch, Madison, 10 00
Second best, D. W. Curtis, Fort Atkinson..... 5 00

CLASS 12.— *Galloways.*

Best exhibition, not less than five head, Peter Davy, Monterey..... $40 00

CLASS 13.— *Fat Cattle and Working Oxen.*

Best fat steer 3 years old and over, H. B. Sherman, Burnett Junction, $20 00
Best fat steer 2 years old and under 3, three exhibits, Geo. Harding, Waukesha 20 00
Second best, Geo. Harding, Waukesha..... 10 00
Best fat cow or heifer 3 years and over, two exhibits, Dexter Curtis & Co. Madison..... 20 00
Second best, Dexter Curtis & Co., Madison..... 10 00
Best fat heifer 2 years old and under 3, two exhibits, Dexter Curtis & Co., Madison 20 00
Best pair working oxen.
Second best, L. C. Wilsey, Deansville .....Silver Goblet.

CLASS 14.— *Holsteins.*

Best exhibition, not less than five head, T. D. Laramy, Beloit..... $40 00

CLASS 16.— *Herds (Short-Horns).*

Best bull and four cows or heifers over 2 years old, five exhibits, H. B. Sherman, Burnett Junction..... $80 00
Second best, Kiser Bros., Oregon..... 50 00

AYRSHIRES.

Best bull and four cows or heifers over 2 years old, two exhibits, Joseph Johnson, Hartland..... $50 00
Second best, Chester Hazen, Ladoga..... 30 00

JERSEYS.

Best bull and four cows or heifers over 2 years old, three exhibits, H. S. Durand, Racine $50 00
Second best, N. N. Palmer, Brodhead..... 30 00

SWEEPSTAKES.

Best bull of any age, seventeen exhibits, Kiser Bros., Madison..... $40 00
Second best, H. B. Sherman, Burnett Junction..... 20 00
Best cow or heifer of any age, seventeen exhibits, Dexter Curtis & Co., Madison 30 00
Second best, Kiser Bros., Oregon 15 00
Best cow and three of her calves owned by exhibitor, five exhibits, N. N. Palmer, Brodhead,.....Silver plate 30 00
Best bull and three of his get owned by exhibitor, five exhibits, Kiser Bros., Oregon, silver plate..... 30 00
Best bull and four heifers under 2 years old, five exhibits, Kiser Bros., Oregon..... 60 00
Second best, H. B. Sherman, Burnett Junction..... 40 00
Best four calves bred and owned by exhibitor, five exhibits, H. B. Sherman, Burnett Junction..... 30 00
Second best, D. Huntley. 20 00
Best fat cow, steer or heifer of any age, five exhibits, Dexter Curtis & Co., Madison, ...Silver medal 25 00

DEPARTMENT C.— SHEEP.

CLASS 17.—*American Merinos.*

Best buck 2 years old and over, nineteen exhibits, O. Cook, Whitewater..... $15 00
Second best, E. Butler, Waterford..... 10 00
Best buck 1 year old and under 2, fourteen exhibits, A. & P. Humbert, Caldwell's Prairie 15 00
Second best, John H. Paul, Genesee..... 10 00
Best pen of three buck lambs, six exhibits, John H. Paul, Genesee... 10 00
Second best, A. & P. Humbert, Caldwell's Prairie..... 5 00
Best pen of three ewes 2 years old and over, nine exhibits, John H. Paul, Genesee..... 15 00
Second best, A. & P. Humbert, Caldwell's Prairie 10 00
Best pen of three ewes, 1 year old and under 2, seven exhibits, C. M. Clark, Whitewater..... 15 00
Second best, E. & P. Humbert, Caldwell's Prairie..... 10 00
Best pen of three ewe lambs, seven exhibits, E. & P. Humbert, Caldwell's Prairie 10 00
Second best, C. M. Clark, Whitewater 5 00
Best buck and five ewes (winners of above excluded), six exhibits, C. M. Clark, Whitewater..... Silver plate. 20 00
Second best, John H. Paul, Genesee ..... Silver plate. 15 00

CLASS 18.— *Long Wool.*

Best buck 2 years old and over, eight exhibits, Chas. Collard, Linden, $15 00
Second best, Joseph O'Malley, Waunakee..... 10 00
Best buck 1 year old and under 2, seven exhibits, A. O. Fox, Oregon, 15 00
Second best, George Harding, Waukesha..... 10 00
Best pen of three buck lambs, ten exhibits, Joseph O'Malley, Waunakee 10 00
Second best, Charles Collard, Linden 5 00
Best pen of three ewes 2 years old and over, five exhibits, Dexter Curtis & Co., Madison 15 00
Second best, George Harding, Waukesha..... 10 00
Best pen of three ewes 1 year old and under 2, four exhibits, A. O. Fox, Oregon 15 00
Second best, Joseph O'Malley, Waunakee..... 10 00
Best pen of three ewe lambs, eight exhibits, George Harding, Waukesha 10 00
Second best, Joseph O'Malley, Waunakee 5 00
Best buck and five ewes (winners of above excluded), three exhibits, George Harding, Waukesha..... Silver plate, 20 00

CLASS 19. — *Downs.*

Best buck 2 years old and over, three exhibits, Lewis Baker, Waunakee, $15 00
Second best, George H. Daubner, Brookfield Center 10 00
Best buck 1 year old and under 2, four exhibits, A. O. Fox, Oregon.. 15 00
Second best, Lewis Baker, Waunakee 10 00
Best pen of three buck lambs, two exhibits, George H. Daubner, Brookfield Center..... 10 00
Best pen of three ewes 2 years old and over, Geo. H. Daubner, Brookfield Center $15 00
Best pen of three ewes 1 year old and under 2, two exhibits, Geo. H. Daubner, Brookfield Center 15 00
Second best, Geo. H. Daubner, Brookfield Center..... ... 10 00
Best pen two ewe lambs, two exhibits, Geo. H. Daubner, Brookfield Center 10 00
Second best, Geo. H. Daubner, Brookfield Center 5 00
Best buck and five ewes, one exhibit (winners of above excluded), Geo. H. Daubner, Brookfield Center.... ....Silver plate, 20 00

DEPARTMENT D.— SWINE.

CLASS 20.— *Large Breeds.*

Best boar 2 years old and over, five exhibits, D. Mosher, Beloit..... $15 00
Second best, E. R. Bement, Oregon 10 00
Best boar 1 year old and under 2, five exhibits, B. F. Fowler, Hart Prairie..... ..... 10 00
Second best, D. Mosher, Beloit..... .... 5 00
Best breeding sow 2 years old and over, nine exhibits, S. Hook & Son, Brooklyn..... ... 15 00
Second best, B. F. Fowler, Hart Prairie..... 10 00
Best breeding sow 1 year old and under 2, eight exhibits, Hook Bros., Brooklyn..... ..... 10 00
Second best, Reuben Boyce, Brooklyn 5 00
Best breeding sow with litter of pigs, not less than four, eight exhibits, Hook Bros., Brooklyn, Wisconsin..... 15 00
Second best, N. W. Dean, Madison..... 10 00
Best boar pig over 6 and under 12 months old, two exhibits, E. Wait & Son, La Grange... ..... 8 00
Second best, E. R Bement, Oregon..... ..... 4 00
Best sow pig over 6 and under 12 months, two exhibits, E. Wait & Son, La Grange..... 8 00
Second best, E. R. Bement, Oregon 4 00
Best boar pig under 6 months old, twenty-seven exhibits, S. Hook & Son, Brooklyn..... .... 8 00
Second best, D. Mosher, Beloit 4 00
Best sow pig under 6 months old, twenty-four exhibits, E. Wait & Son, La Grange..... ..... 8 00
Second best, S. Hook & Son, Brooklyn..... 4 00

CLASS 21 — *Middle Breeds.*

Best boar 2 years old and over, three exhibits, J. E. Owens, Brooklyn, $15 00
Second best, A. Malone, Beloit 10 00
Best boar 1 year old and under 2, three exhibits, Albert Randall, Hustisford 10 00
Second best, Allen Stetson, Rochester, Wis..... 5 00
Best breeding sow 2 years old and over, five exhibits, A. Malone, Beloit 15 00
Second best, J. E. Owens, Brooklyn..... ..... 10 00
Best breeding sow with litter of pigs, not less than 4, four exhibits, Albert Randall, Hustisford..... ..... 15 00
Second best, A. Malone, Beloit 10 00

Best breeding sow 1 year old and under 2, two exhibits, A. Malone, Beloit $10 00
Second best, Albert Randall, Hustisford 5 00
Best boar pig over 6 months and under 1 year old, five exhibits, A. Malone, Beloit 8 00
Second best, Albert Randall, Hustisford 4 00
Best sow pig over 6 months and under 1 year old, three exhibits, Albert Randall 8 00
Second best, Albert Randall 4 00
Best boar pig under 6 months old, twelve exhibits, A. Malone, Beloit, 8 00
Second best, J. E. Owens, Brooklyn, Wis 4 00
Best sow pig under 6 months old, nine exhibits, A. Malone, Beloit ... 8 00
Second best, J. E. Owens, Brooklyn 4 00

CLASS 22.— *Small Breeds.*

Best boar 2 years old and over, three exhibits, D. H. Hillman, Brandon $15 00
Second best, S. H. & A. E. Joiner, Janesville 10 00
Best boar 1 year old and under 2, one exhibit, S. H. & A. E. Joiner .. 10 00
Best breeding sow 2 years old and over, three exhibits, D. H. Hillman, Brandon 15 00
Second best, S. H. & A. E. Joiner, Janesville 10 00
Best breeding sow 1 year old and under 2, three exhibits, S. H. & A. E. Joiner 10 00
Second best, S. H. & A. E. Joiner 5 00
Best breeding sow with litter of pigs, not less than 4, four exhibits, D. H. Hillman 15 00
Second best, S. H. & A. E. Joiner, Janesville 10 00
Best boar pig over 6 months and under 1 year old, seven exhibits, S. H. & A. E. Joiner 8 00
Second best, S. H. & A. E. Joiner 4 00
Best sow pig over 6 months and under 1 year old, nine exhibits, S. H. & A. E. Joiner 8 00
Second best, D. H. Hillman, Brandon 4 00
Best boar pig under 6 months old, seven exhibits, D. H. Hillman 8 00
Second best, S. H. & A. E. Joiner, Janesville 4 00
Best sow pig under 6 months old, nine exhibits, D. H. Hillman, Brandon 8 00
Second best, Jerome Bixby, Stoughton 4 00

Special Premiums by Messrs. Plankinton & Armour and Layton & Co., Pork Packers, of Milwaukee.

Best boar of any age, eighteen exhibits, B. F. Fowler, Hart Prairie .. $10 00
Best sow of any age, twenty-five exhibits, S. Hook & Son, Brooklyn .. 10 00
Best pen six pigs under 8 months old, nine exhibits, S. Hook & Son, Brooklyn 5 00
Best pen eight Berkshire pigs, not over 6 months old, three exhibits, Albert Randall, Hustisford 25 00

DEPARTMENT E. — POULTRY.

CLASS 23. — *Asiatic.*

Best trio Light Brahmas, fowls, eight exhibits, Mrs. Geo. W. Baker, Madison $2 50
Second best, E. Quackenbush, Sun Prairie 1 50
Best trio Light Brahmas, chicks, eight exhibits, Dennis O'Keefe, Madison 2 00
Second best, W. H. Turneaure, Clinton 1 00
Best trio Dark Brahmas, fowls, three exhibits, Dr. G. Allen, Marshall 2 50
Second best, W. H. Turneaure, Clinton 1 50

Best trio Dark Brahmas, chicks, three exhibits, Dr. G. Allen, Marshall	$2 00
Second best, W. H. Turneaure	1 00
Best trio Buff Cochins, fowls, four exhibits, E. Wilson, Lake Mills	2 50
Second best, J. R. Brabazan, Delavan	1 50
Best trio Buff Cochins, chicks, six exhibits, J. R. Brabazan	2 00
Second best, Henry Smith, Brooklyn	1 00
Best trio Partridge Cochins, fowls, three exhibits, W. H. Turneaure, Clinton	2 50
Second best, W. C. Hugunin, Janesville	1 50
Best trio Partridge Cochins, chicks, four exhibits, E. Wilson, Lake Mills	2 00
Second best, J. R. Brabazan, Delavan	1 00
Best trio White Cochins, fowls, two exhibits, A. H. Currier, Rockford, Ill	2 50
Second best, W. H. Turneaure, Clinton	1 50
Best trio White Cochins, chicks, two exhibits, E. Wilson, Lake Mills,	2 00
Second best, A. H. Currier, Rockford, Ill	1 00

DORKING.

Best trio American Dominique, fowls, two exhibits, J. R. Brabazan	$2 50
Second best, W. C. Hugunin, Janesville	1 50
Best trio American Dominique, chicks, one exhibit, J. R. Brabazan	2 00
Best trio Plymouth Rocks, fowls, eight exhibits, A. H. Currier, Rockford, Ill	2 50
Second best, H. S. Durand, Racine	1 50
Best trio Plymouth Rocks, chicks, eight exhibits, W. H. Turneaure	2 00
Second best, A. H. Currier, Rockford, Ill	1 00

SPANISH.

Best trio Black Spanish, white face, fowls, two exhibits, W. H. Turneuer	$2 50
Second best, J. R. Brabazan, Delavan	1 50
Best trio Black Spanish, chicks, three exhibits, J. R. Brabazan	2 00
Second best, Levi Bookhart, Madison	1 00
Best trio White Leghorns, fowls, seven exhibits, A. H. Currier, Rockford, Ill	2 50
Second best, D. Huntley	1 50
Best trio White Leghorns, chicks, eleven exhibits, W. H. Turneaure.	2 00
Second best, A. H. Currier	1 00
Best trio Brown Leghorns, fowls, three exhibits, Mrs. Jos. Hausmann, Madison	2 50
Second best, W. C. Hugunin, Janesville	1 50
Best trio Brown Leghorns, chicks, three exhibits, W. C. Hugunin	2 00
Second best, W. H. Turneaure	1 00
Best trio Black Hamburgs, fowls, two exhibits, S. H. Hall, Madison	2 50
Second best, W. C. Hugunin	1 50
Best trio Black Hamburgs, chicks, two exhibits, W. C. Hugunin	2 00
Second best, W. C. Hugunin	1 00
Best trio Silver Spangled or Penciled Hamburgs, fowls, seven exhibits, E. Wilson, Lake Mills	2 50
Second best, John Hayes, Madison	1 50
Best trio Silver Spangled or Penciled Hamburgs, chicks, eight exhibits, C. Sutherland, Syene	2 00
Second best, W. H. Turneaure	1 00

FRENCH.

Best trio Houdons, fowls, four exhibits, J. R. Brabazan	$2 50
Second best, W. H. Turneaure.	1 50
Best trio Houdons, chicks, four exhibits, W. H. Turneaure	2 00
Second best, J. R. Brabazan	1 00

POLISH.

Best trio Black Polish, white crests, fowls, three exhibits, J. R. Brabazan	$2 50
Second best, W. H. Turneaure	1 50
Best trio Black Polish, chicks, two exhibits, J. R. Brabazan	2 00
Best trio White Polish, fowls, three exhibits, E. Wilson, Lake Mills	2 50
Best trio White Polish, chicks, four exhibits, W. H. Turneaure	2 00
Second best, E. Wilson, Lake Mills	1 00

BANTAM.

Best trio Golden Seabright, fowls, four exhibits, J. R. Brabazan	$2 50
Second best, W. H. Turneaure	1 50
Best trio Golden Seabright, chicks, two exhibits, J. R. Brabazan	2 00
Best trio Silver Duckwing, chicks, one exhibit, W. C. Hugunin	2 00
Best trio any other variety, fowls, J. R. Brabazan	2 50
Second best, E. Wilson, Lake Mills	1 50
Best trio any other variety, chicks, three exhibits, G. Allen	2 00
Second best, E. Wilson	1 00

GAME.

Best pair Brown Red, chicks, one exhibit, John Hayes, Madison	$2 00
Best pair Black Breasted Red game, fowls, eight exhibits, W. H. Turneaure	2 50
Second best, W. C. Hugunin	1 50
Best pair Black Breasted Red game, chicks, six exhibits, Dr. G. Allen,	2 00
Second best, John Hayes, Madison	1 00
Best pair Pyle, chicks, one exhibit, E. Wilson, Lake Mills	2 00
Best pair game, any other variety, fowls, one exhibit, E. Wilson	2 50

TURKEYS.

Best pair bronze turkeys, fowls, four exhibits, E. Wilson	$2 50
Second best, Nathaniel Cole, Burke	1 50
Best pair common turkeys, fowls, three exhibits, W. C. Hugunin	2 00
Second best, W. C. Hugunin	1 00

WATER FOWLS.

Best pair geese, four exhibits, W. C. Hugunin	$2 00
Second best, J. R. Brabazan	1 00
Best pair Aylesbury ducks, two exhibits, W. C. Hugunin	2 00
Second best, W. C. Hugunin	1 00
Best pair Rowen ducks, one exhibit, W. C. Hugunin	2 00
Second best, W. C. Hugunin	1 00
Best pair Muscovy ducks, three exhibits, W. C. Hugunin	2 00
Second best, W. C. Hugunin	1 00
Best pair Cayuga ducks, four exhibits, W. C. Hugunin	2 00
Greatest variety of poultry shown by one person, W. C. Hugunin	5 00
Second best, J. R. Brabazan, Delavan	Silver vase.

PIGEONS.

Best exhibition fancy pigeons, two exhibits, W. C. Hugunin	$5 00
Second best, M. Breitenbach, Madison	3 00
Best show of rabbits, W. C. Hugunin, one exhibit	3 00

DEPARTMENT F. — AGRICULTURE.

CLASS 24. — *Field Products.*

Best sample spring wheat (Club), six exhibits, D. T. Pilgrim, West Granville	$5 00
Second best, Cutter & Palmer, Madison	3 00

Best sample spring wheat (Rio Grande or China Tea), five exhibits, A. J. Phillips, West Salem $5 00
Second best, J. W. Wood, Baraboo 3 00
Best sample spring wheat (Fife), seven exhibits, D. T. Pilgrim, West Granville 5 00
Second best, Joseph Armberger, W. Blue Mounds 3 00
Best any other spring variety, twelve exhibits, W. H. Porter, Marshall 5 00
Second best, John S. Dore, Neillsville 3 00
Best white winter wheat, twenty-one exhibits, D. T. Pilgrim, West Granville 5 00
Second best, M. E. Spring, Baraboo 3 00
Best red winter wheat, twenty-one exhibits, J. W. Wood, Baraboo 5 00
Second best, Z. Wait, Portage 3 00
Best rye, twelve exhibits, N. W. Dean, Madison 5 00
Second best, D. T. Pilgrim, West Granville 3 00
Best white oats, twenty-four exhibits, D. T. Pilgrim, W. Granville ... 5 00
Second best, A. J. Philips, W. Salem 3 00
Best black oats, eight exhibits, D. T. Pilgrim 5 00
Second best, H. W. Herrick, East Middleton 3 00
Best barley, twelve exhibits, D. T. Pilgrim 5 00
Second best, D. T. Pilgrim 3 00
Best buckwheat, ten exhibits, D. T. Pilgrim 4 00
Second best, H. W. Herrick, East Middleton 2 00
Best flax seed, four exhibits, D. T. Pilgrim 5 00
Second best, Warren Jacket, Clontarf 3 00
Best sack of hops, three exhibits, M. E. Spring, Baraboo 5 00
Second best, N. W. Dean, Madison 3 00
Best timothy seed, thirteen exhibits, J. W. Wood, Baraboo 5 00
Second best, Hiram Baker, Stoughton 3 00
Best clover seed, seven exhibits, James Cranefield, Syene 5 00
Second best, D. T. Pilgrim, West Granville 3 00
Best peas, sixteen exhibits, Warren Jacket, Clontarf 5 00
Second best, J. W. Wood, Baraboo 3 00
Best beans, ten exhibits, J. W. Wood, Baraboo 5 00
Second best, Ephraim Newton, Oregon 3 00
Best dent corn, white, eleven exhibits, Warren Jacket, Clontarf 5 00
Second best, J. Rutherford, Verona 3 00
Best dent corn, yellow, twenty-seven exhibits, Hook Bros., Brooklyn. 5 00
Second best, James Terwilliger, Syene 3 00
Best flint corn, white, nine exhibits, Warren Jacket, Clontarf 5 00
Second best, James Terwilliger, Syene 3 00
Best flint corn, yellow, fourteen exhibits, M. Seymour, Reedsburg 5 00
Second best, J. Rutherford, Verona 3 00
Best ten pounds tobacco, three exhibits, J. R. Heistand, Madison .. 5 00
Second best, Preston W. Brown, Madison 3 00
Best six pumpkins, ten exhibits, Wm. Tusler, Rutland 3 00
Second best, J. W. Wood, Baraboo 2 00
Best exhibition of field products, grown in the state, including not less than five varieties of cereal grain, not less than twelve varieties in all, five exhibits, D. T. Pilgrim, West Granville, ...Silver plate, 25 00
Second best, J. W. Wood, Baraboo ....Silver plate, 15 00

CLASS 25.— *Garden and Vegetable Produce.*

Best early Ruby potatoes, five exhibits, J. W. Wood $3 00
Second best, W. H. Porter, Marshall 2 00
Best Early Rose potatoes, twenty-one exhibits, W. H. Harnden, Madison 3 00
Second best, J. Rutherford, Verona 2 00
Best any other variety early potatoes, fifty-two exhibits, Eli Gill, Syene 3 00
Second best, C. Sutherland, Syene 2 00
Best half bushel peachblows, nine exhibits, M. Seymour, Reedsburg .. 3 00

Second best, Warren Jacket, Clontarf	$2 00
Best any other variety of late potatoes, forty-six exhibits, W. H. Porter	3 00
Second best, D. T. Pilgrim, West Granville	2 00
Best yellow Nansemond sweet potatoes, two exhibits, J. W. Wood	3 00
Second best, S. H. Hall, Madison	2 00
Best four quarts Lima beans, seven exhibits, J. W. Wood, Baraboo	3 00
Second best, S. H. Hall, Madison	2 00
Best blood turnip beets, fifteen exhibits, J. Wood	3 00
Second best, D. T. Pilgrim	2 00
Best Mangel Wurzel, ten exhibits, J. Rutherford	3 00
Second best, J. W. Wood	2 00
Best red Westerfield onions, nine exhibits, W. H. Harnden	3 00
Second best, J. W. Wood	2 00
Best yellow Danvers, seven exhibits, W. H. Harnden	3 00
Second best, J. W. Wood	2 00
Best any other variety of onions, ten exhibits	
Best drumhead cabbage, nine exhibits, M. Seymour, Reedsburg	3 00
Second best, J. W. Wood, Baraboo	2 00
Best Winnigstadt cabbage, eight exhibits, S. H. Hall, Madison	3 00
Second best, D. T. Pilgrim, West Granville	2 00
Best long orange carrots, nine exhibits, J. W. Wood	3 00
Second best, E. C. Holt, Madison	2 00
Best horn carrots, eight exhibits, J. W. Wood	3 00
Second best, Merton Seymour, Reedsburg	2 00
Best head cauliflower, six exhibits, S. H. Hall, Madison	3 00
Second best, Miss Carrie Wildhagen, Madison	2 00
Best ten heads of celery, three exhibits, N. W. Dean, Madison	3 00
Best twelve ears early sweet corn, thirteen exhibits, J. Rutherford, Verona	3 00
Second best, William McEwan, Milton	2 00
Best twelve ears late sweet corn, eighteen exhibits, Miss Carrie Wildhagen	3 00
Second best, D. T. Pilgrim, West Granville	2 00
Best sample egg plant, six exhibits, J. W. Wood	2 00
Second best, D. T. Pilgrim	1 00
Best six water melons, two exhibits, James Cranefield, Syene	3 00
Second best, J. W. Wood, Baraboo	2 00
Best six nutmeg melons, six exhibits, Mrs. C. E. Waterman, Rutland,	3 00
Second best, J. W. Wood, Baraboo	2 00
Best parsnips, six exhibits, J. W. Wood	3 00
Second best, J. Rutherford, Verona	2 00
Best twelve large red peppers, nine exhibits, J. W. Wood	2 00
Best peck vegetable oysters, nine exhibits, J. W. Wood	2 00
Second best, Merton Seymour, Reedsburg	1 00
Best six Hubbard squashes, nine exhibits, H. W. Herrick, E. Middleton	3 00
Second best, Merton Seymour, Reedsburg	2 00
Largest squash, any variety, eleven exhibits, J. W. Wood	3 00
Second largest, Merton Seymour	2 00
Best twelve tomatoes, twenty-four exhibits, George Ringrose, Wauwatosa	3 00
Second best, Merton Seymour, Reedsburg	2 00
Best flat turnips, four exhibits, S. H. Hall, Madison	3 00
Second best, Warren Jacket, Clontarf	2 00
Best rutabagas, six exhibits, Merton Seymour	3 00
Second best, S. H. Hall, Madison	2 00
Best exhibition by professionals, grown in state by exhibitor, including not less than five varieties of vegetables, not less than twelve varieties in all, J. Rutherford, Verona	10 00
Second best, S. H. Hall, Madison	5 00
Best exhibition by nonprofessionals, grown in state by exhibitor, J. W. Wood, Baraboo	10 00
Second best, Merton Seymour, Reedsburg	5 00

CLASS 26.— *Products of the Flouring Mill, Dairy and Apiary.*

FLOUR.

Best barrel winter wheat flour, three exhibits, W. H. Porter, Marshall, ... Silver plate, $15 00
Second best, J. Rutherford, Verona ..... Silver plate, 10 00
Best barrel spring wheat flour, five exhibits, E. J. Carpenter, Whitehall, Wisconsin, ... Silver plate, 15 00
Second best, W. H. Porter, Marshall ..... Silver plate, 10 00

CREAMERY BUTTER.

For each exhibit, not less than one hundred pounds, made at any time, and awarded forty points or over in a scale of fifty or perfection, shall be designated "Gilt Edged," and draw a pro rata share of $100, seven exhibits. The following named persons were awarded as follows:

Hiram Smith, Sheboygan Falls $20 00
C. P. Goodrich, Fort Atkinson 20 00
R. S. Houston, Kenosha 20 00
Mount Horeb Creamery and Cheese Company, Mt. Horeb 20 00
W. D. Stowe, Hart Prairie 20 00

DAIRY BUTTER.

Best roll, print or package, not less than twenty pounds (twenty exhibits), Horatio Merriman, Fort Atkinson $10 00
Second best, A. Chipman, Sun Prairie 5 00

SWEEPSTAKES.

Best exhibit, not less than one hundred pounds, made at any time in any factory or dairy, nine exhibits, R. S. Houston, Kenosha $25 00

FACTORY CHEESE.

For each exhibit of three cheese, or not less than one hundred and fifty pounds, made at any time, and awarded forty points and over in a scale of fifty points or perfection, shall be designated "Grade No. 1," and draw a pro rata share of $120, twenty-four exhibits. The following named persons were awarded as above specified:

Charles Gibson, Lind, Wis $6 65
W. D. Stowe, Hart Prairie 6 65
C. F. F. Karsted, Mosel, Wis 6 65
Juckem Co., Sheboygan 6 65
Adam Kastra, Sheboygan 6 65
Caroline Grover, Sheboygan 6 65
Pierce Bros., Sheboygan Falls 6 65
Mather Bros., Sheboygan Falls 6 65
A. D. Deland, Sheboygan Falls 6 65
L. Graves, Sheboygan Falls 6 65
G. W. Weeden, Sheboygan Falls 6 65
F. Lueck, Sheboygan Falls 6 65
S. Remiking, Sheboygan Falls 6 65
S. Littlefield, Plymouth 6 55
Joseph Gleen, Dayton 6 65
Loomis & Lever, Sheboygan 6 65
C. Hazen, Brandon (factory) 6 65
C. Hazen, Ladoga (factory) 6 65

SWEEPSTAKES.

Best cheese, factory or dairy, not less than one hundred and fifty pounds, made at any time, Juckem Company, Sheboygan $25 00

Special Premium by CORNISH & CURTIS, *of Fort Atkinson.*

Rectangular Churn, worth $12 00, for best tub of butter churned in Rectangular Churn, of not less than twenty pounds. For second best, a Common Sense Butter Worker, worth $5.00. Five exhibits.

Best 20 pounds, Horatio Merriman, Fort Atkinson, churn..... $12 00
Second best, Hiram Smith, Sheboygan Falls, butter worker..... 5 00

Special Premium by H. K. & F. B. THURBER & CO.

For first, second and third best packages of 50 pounds of butter salted with Higgins' Eureka Salt: first, gold medal; second, silver medal; third, bronze medal.

Best 50 pounds butter, Hiram Smith, Sheboygan Falls..... Gold medal.
Second best, R. S. Houston, Kenosha, Wis ..... Silver medal.
Third best, Mrs. A. A. Boyce, Lodi..... Bronze medal

The same special is offered by the same firm for the first, second and third best cheese.

Best cheese, three exhibits, Mather Bros., Sheboygan Falls .. Gold medal.
Second best, A. D. Deland ..... Silver medal.
Third best, W. D. Stowe, Hart Prairie..... Bronze medal.

Samples of Honey and Sugar.

Best sample, 10 pounds, six exhibits, L. F. Biglow, Brooklyn $5 00
Second best, Mrs. L. F. Biglow 3 00
Best practical bee hive, one exhibit, G. W. Sanford, East Middleton.. 5 00
Best honey extractor, one exhibit, G. W. Sanford, East Middleton.... 2 00
Best extracted honey, two exhibits, G. W. Sanford, East Middleton .. 3 00
Best method of handling bees, two exhibits, G W. Sanford, East Middleton 10 00
Best Italian bees, two exhibits, G. W. Sanford, East Middleton..... 5 00
Best 10 pounds maple sugar, one exhibit, B. A. Graves, Platteville... 5 00

CLASS 27. — *Household Products.*

BREAD AND CAKE.

Best loaf Graham bread, nine exhibits, Mrs. R. J. Atwood, Madison.. $3 00
Best loaf white bread (hop yeast), fourteen exhibits, Mrs. E. M. Newton, Verona..... 3 00
Best loaf white bread (milk raising), four exhibits, Mrs. Geo. W. Baker, Madison 3 00
Best loaf of Indian bread, seven exhibits, Miss Gertie A. Kellogg, Janesville 3 00
Best sponge cake, eight exhibits, J. R. Heistand, Madison..... 2 00
Best pound cake, six exhibits, J. R. Heistand, Madison..... 2 00
Best jelly cake, eight exhibits, Mrs. R. J. Atwood, Madison 2 00
Best chocolate cake, four exhibits, Mrs. F. C. Curtis..... 2 00
Best cocoanut cake, five exhibits, Mrs. C. P. Root, Verona..... 2 00
Best fruit cake, eight exhibits, Mrs. L. F. Biglow..... 2 00
Best and largest exhibition of articles of above sorts, Z. Wait, Portage, ... Silver medal.

Sealed and Preserved Fruits and Pickles, in Glass Jars, Domestic Manufacture.

Best canned peaches, nine exhibits, Mrs. C. P. Root, Verona, ... Silver plate, $2 00
Best canned plums, nine exhibits, Mrs Annie W. Cooper, Madison,
Best canned currants, six exhibits, Mrs. E. M. Newton, Verona, ... Silver plate, 2 00

Best canned tomatoes, nine exhibits, Mrs. E. M. Newton, Verona, ... Silver plate, $2 00
Best canned gooseberries, three exhibits, Mrs. R. J. Atwood, Madison, ... Silver plate, 2 00
Best canned raspberries, six exhibits, Mrs. E. M. Newton, Verona, ... Silver plate, 2 00
Best canned strawberries, eight exhibits, Mrs. R. J. Atwood, Madison, ... Silver plate, 2 00
Best canned grapes, nine exhibits, Z. Wait, Portage..... Silver plate, 2 00
Best canned blackberries, six exhibits, Mrs. R. J. Atwood, Madison, ... Silver plate, 2 00
Best canned pears, eight exhibits, Mrs. Annie W. Cooper, Madison, ... Silver plate, 2 00
Best canned Hyslop or Transcendent crabs, nine exhibits, J. W. Wood, Baraboo..... Silver plate, 2 00
Best plum jelly, eleven exhibits, Mrs. Fannie Vilas, Madison, ... Silver plate, 2 00
Best currant jelly, eight exhibits, Mrs. Fannie Vilas, Madison, ... Silver plate, 2 00
Best red raspberry jelly, four exhibits, David Dare, Hubbleton, ... Silver plate, 2 00
Best crab apple jelly, ten exhibits, Mrs. Fannie Vilas, Madison, ... Silver plate, 2 00
Best marmalade, six exhibits, Mrs. E. M. Newton, Verona, Silver plate, 2 00

SOUR PICKLES.

Best cucumbers, nine exhibits, J. W. Wood, Baraboo ... Silver plate, $2 00
Best mangoes, four exhibits, J. W. Wood, Baraboo..... Silver plate, 2 00
Best peaches, three exhibits, Mrs. C. P. Root, Verona.... Silver plate, 2 00
Best cauliflower, three exhibits, W. T. Leitch, Jr., Dane, Silver plate, 2 00
Best onions, six exhibits, Mrs. Annie W. Cooper, Madison, Silver plate, 2 00
Best mixed, seven exhibits, Mrs. R. J. Atwood, Madison, Silver plate, 2 00

SWEET PICKLES.

Best peaches .....
Best apples, six exhibits, Mrs. E. M. Newton, Verona.. Silver plate, $2 00
Best apple butter, five exhibits, David Dare, Hubbleton, Silver plate, 2 00
Best raspberry jam, five exhibits, David Dare, Hubbleton, Silver plate, 2 00
Best blackberry jam, three exhibits, David Dare, Hubbleton, ... Silver plate, 2 00
Best tomato catsup, seven exhibits, Mrs. E. M. Williamson, Madison, ... Silver plate, 2 00

Special Premium by Milwaukee Chamber of Commerce.

Best bushel of winter wheat, twenty-three exhibits, D. T. Pilgrim, W. Granville..... $25 00
Best bushel spring wheat, fourteen exhibits, D. T. Pilgrim, W. Granville..... 25 00

DEPARTMENT G.—FRUITS AND FLOWERS.

CLASS 28.—*Fruits by Professional Cultivators.*

APPLES.

Best and greatest display of apples, twenty varieties, seven exhibits, A. G. Tuttle, Baraboo..... $10 00
Second best, Wm. Reed, North Prairie..... 7 00
Third best, G. P. Peffer, Pewaukee..... 5 00
Best ten varieties apples adapted to northwest, G. P. Peffer, Pewaukee, 7 00

Second best, L. L. Kellogg, Janesville	$5 00
Third best, John Howie, Waunakee	3 00
Best five varieties apples adapted to northwest, eight exhibits, G. P. Peffer, Pewaukee	3 00
Second best, N. N. Palmer, Brodhead	2 00
Third best, L. L. Kellogg, Janesville	1 00
Best and largest variety winter apples, not to exceed ten, seven exhibits, G. P. Peffer	5 00
Second best, N. N. Palmer, Brodhead	3 00
Third best, Wm. Reid, North Prairie	2 00
Best five varieties winter apples, eight exhibits, G. P. Peffer	3 00
Second best, N. N. Palmer	2 00
Third best, L. L. Kellogg, Janesville	1 00
Best show ten varieties large and showy apples, nine exhibits, Wm. Reid	5 00
Second best, A. G. Tuttle, Baraboo	3 00
Third best, J. C. Plumb, Milton	2 00
Largest apple, six exhibits, G. P. Peffer, Pewaukee	1 00
Heaviest apple, five exhibits, G. P. Peffer, Pewaukee	1 00
Best plate Plumb Cider, five exhibits, John Howie, Waunakee	1 00
Best plate Haas, six exhibits, G. P. Peffer	1 00
Best plate Fameuse, eight exhibits, A. G. Tuttle, Baraboo	1 00
Best plate Walbridge, three exhibits	1 00
Best plate Utter, three exhibits, Wm. Reid, North Prairie	1 00
Best plate Westfield Seek-no-Further, four exhibits, G. P. Peffer	1 00
Best plate Tallman Sweet, seven exhibits, John Howie, Waunakee	1 00
Best plate St. Lawrence, eight exhibits, N. N. Palmer, Brodhead	1 00
Best plate Duchess of Oldenburg, ten exhibits, Wm. Reid, North Prairie	1 00
Best plate Willow Twig, five exhibits, N. N. Palmer	1 00
Best plate Wealthy, one exhibit, G. P. Peffer	1 00
Best plate Pewaukee, four exhibits, G. P. Peffer	1 00

PEARS.

Best and greatest display of varieties, six exhibits, G. P. Peffer	$3 00
Second best, Wm. Reid	2 00
Best three varieties, four exhibits, G. P. Peffer	2 00
Best Flemish Beauty, eight exhibits, A. G. Tuttle, Baraboo	2 00

PLUMS.

Best and greatest variety, five exhibits, G. P. Peffer	$3 00
Best Miner, four exhibits, G. P. Peffer	1 00
Best native or wild, two exhibits, G. P. Peffer	1 00

CLASS 29.— *Grapes and Crabs by Professional Cultivators.*

GRAPES.

Best and greatest display of varieties, seven exhibits, C. H. Greenman, Wauwatosa	$10 00
Second best, Wm. Reid, North Prairie	7 50
Third best, N. N. Palmer, Brodhead	5 00
Best ten varieties, eight exhibits, Wm. Reid	7 50
Second best, C. H. Greenman, Wauwatosa	5 00
Third best, Henry Schuster, Middleton	3 00
Best five varieties, ten exhibits, Wm. Reid	3 00
Second best, C. H. Greenman	2 00
Third best, L. L. Kellogg, Janesville	1 00
Best three varieties, eight exhibits, Wm. Reid	3 00
Second best, C. H. Greenman	2 00
Third best, Henry Schuster, Middleton	1 00
Best two varieties, nine exhibits, Wm. Reid	2 00
Second best, Henry Schuster	1 00

Best single variety, seven exhibits, Wm. Reid	$2 00
Second best, C. H. Greenman	1 00
Best three bunches Concord on one cane, eight exhibits, Wm. Reid	2 00
Second best, C. H. Greenman	1 00
Best three bunches Delaware on one cane, seven exhibits, Wm. Reid	2 00
Best single variety, quality to rule, seven exhibits, Wm. Reid	3 00
Second best, C. H. Greenman	2 00
Best show foreign, under glass, one exhibit, G. P. Peffer	3 00

CRABS.

Best and greatest variety named, seven exhibits, G. P. Peffer	$3 00
Second best, Wm. Reid	2 00
Third best, N. N. Palmer	1 00
Best plate Hyslop, eleven exhibits, Henry Schuster	1 00
Best plate Transcendent, ten exhibits, Wm. Reid	1 00
Best Whitney, No. 20, four exhibits, C. H. Greenman	1 00
Best seedling crab, five exhibits, G. P. Peffer	2 00

Sweepstakes on Fruits of all Kinds.

Best collection of fruits of all kinds, seven exhibits, G. P. Peffer	$7 00
Second best, Wm. Reid	5 00
Third best, N. N. Palmer	3 00

CLASS 30. — *Fruits by Non-Professional Cultivators.*

APPLES.

Best and greatest display of varieties, not to exceed twenty, eighteen exhibits, P. J. Foster, Rock Springs	$10 00
Second best, W. C. Warner, Baraboo	7 50
Third best, Geo. Jeffery, Milwaukee	5 00
Best ten varieties adapted to northwest, sixteen exhibits, D. Huntley,	7 00
Second best, P. J. Foster, Rock Spring	5 00
Third best, A. J. Philips, West Salem	3 00
Best show of ten varieties of large showy apples, fifteen exhibits, W. C. Warner	5 00
Second best, P. J. Foster	3 00
Third best, George Jeffery	2 00
Best five varieties adapted to northwest, twenty-one exhibits, A. J. Philips	3 00
Second best, P. J. Foster	2 00
Third best, W. C. Warner	1 00
Best and largest variety winter, not to exceed ten, sixteen exhibits, D. Alcott, Brodhead	5 00
Second best, B. D. Olds, Clinton	3 00
Third best, A. J. Philips	2 00
Best five varieties winter, seventeen exhibits, J. R. Brabazan, Delavan,	3 00
Second best, P. J. Foster, Rock	2 00
Third best, B. D. Olds	1 00
Largest apple, thirteen exhibits, Andrus Viall, Madison	1 00
Heaviest apple, ten exhibits, D. Alcott, Brodhead	1 00
Best plate Plumb Cider, fifteen exhibits, P. J. Foster	1 00
Best plate Haas, nine exhibits, A. J. Philips	1 00
Best plate Fameuse, twenty-three exhibits, P. J. Foster	1 00
Best plate Walbridge, seven exhibits, P. J. Foster	1 00
Best plate Utter, eleven exhibits, P. J. Foster	1 00
Best plate Westfield Seek-no-Further, fifteen exhibits, Cutter & Palmer,	1 00
Best plate Tallman Sweet, twenty-three exhibits, P. J. Foster	1 00
Best plate St. Lawrence, seventeen exhibits, P. J. Foster	1 00
Best plate Duchess of Oldenburg, seventeen exhibits, M. E. Spring, Baraboo	1 00
Best plate Willow Twig, eleven exhibits, P. J. Foster	1 00
Best plate Wealthy, five exhibits, A. J. Philips	1 00
Best plate Pewaukee, seven exhibits, A. J. Philips	1 00

PEARS.

Best and greatest display of varieties, seven exhibits, Geo. Jeffery	$3 00
Second best, James Ozanne, Somers	2 00
Third best, Mrs. A. A. Boyce	1 00
Best three varieties, five exhibits, Geo. Jeffery	2 00
Second best, James Ozanne	1 00
Best Flemish Beauty, eighteen exhibits, D. Alcott	2 00

PLUMS.

Best and greatest variety, three exhibits, Geo. Jeffery	$3 00
Best Miner, five exhibits, D. Alcott	1 00
Best native or wild, nine exhibits, Mrs. A. A. Boyce	1 00

CLASS 31.— *Grapes and Crabs by Non-Professional Cultivators.*

GRAPES.

Best and greatest display of varieties, four exhibits, V. Lowe, Palmyra	$10 00
Second best, F. S. Lawrence, Janesville	7 50
Best ten varieties, seven exhibits, V. Lowe	7 50
Second best, Victor Wayman, Madison	5 00
Third best, F. S. Lawrence	3 00
Best five varieties, nine exhibits, Geo. Ringrose, Wauwatosa	3 00
Second best, Victor Wayman, Madison	2 00
Third best, S. Lowe, Palmyra	1 00
Best three varieties, eleven exhibits, S. Lowe	3 00
Second best, Geo. Ringrose, Wauwatosa	2 00
Third best, Hermann Tiedemann, Middleton	1 00
Best two varieties, twelve exhibits, F. S. Lawrence	2 00
Second best, S. Lowe	1 00
Best single variety, twelve exhibits, Victor Wayman	2 00
Second best, Geo. Ringrose	1 00
Best three bunches Concord, one cane, ten exhibits, S. Lowe	2 00
Second best, Victor Wayman	1 00
Best three bunches Delaware, one cane, eight exhibits, S. Lowe	2 00
Second best, F. S. Lawrence	1 00
Best single variety, quality to rule, eleven exhibits, F. S. Lawrence	3 00
Second best, V. Lowe	2 00

CRABS.

Best and greatest variety, named eleven exhibits, Geo. Ringrose	$3 00
Second best, A. J. Philips	2 00
Third best, Geo. Jeffery	1 00
Best plate Hyslop, seventeen exhibits, A. J. Philips	1 00
Best plate Transcendent, fifteen exhibits, Geo. Ringrose	1 00
Best plate Whitney No. 20, six exhibits, A. J. Philips	1 00
Best seedling crab, seven exhibits, D. Alcott	2 00

Sweepstakes on Fruit of all Kinds.

Best collection of fruit of all kinds, five exhibits, Geo. Jeffery	$10 00
Second best, James Ozanne	5 00

CLASS 33.— *Nursery Trees.*

Best collection of evergreens, one exhibit, J. C. Plumb, Milton	Diploma
Best collection of fruit trees, one exhibit. J. C. Plumb, Milton	Diploma

CLASS 34.— *Flowers by Professional Cultivators.*

Best and most artistically arranged floral design, five exhibits, Wm. Kitzerow	$5 00
Second best, Mrs. J. E. Williams, Madison	3 00

Best and most tastefully arranged collection of cut flowers, six exhibits, Geo. Ringrose	$4 00
Second best, Wm. Kitzerow, Milwaukee	3 00
Third best, O. P. Freeborn, Milton	2 00
Best pyramidal bouquet, six exhibits, Wm. Kitzerow	3 00
Second best, Mrs. J. E. Williams	2 00
Best pair flat table bouquets, four exhibits, Wm. Kitzerow	2 00
Second best, Mrs. J. E. Williams	1 00
Best pair hand bouquets, five exhibits, Wm. Kitzerow	2 00
Second best, Geo. Ringrose	1 00
Best bouquet everlasting flowers, four exhibits, Wm. Kitzerow	3 00
Second best, H. G. Roberts, Janesville	2 00
Best ten named dahlias, two exhibits, Wm. Kitzerow	2 00
Second best, J. C. Plumb, Milton	1 00
Best display of roses, Wm. Kitzerow	3 00
Second best, O. P. Freeborn, Milton	2 00
Best five named varieties of roses, three exhibits, Wm. Kitzerow	3 00
Best display of verbenas, four exhibits, O. P. Freeborn	2 00
Second best, Geo. Ringrose	1 00
Best show of pansies, two exhibits, O. P. Freeborn	1 00
Best show of double petunias, one exhibit, Wm. Kitzerow	1 00
Best show of gladiolus, two exhibits, Wm. Kitzerow	1 00
Best show greenhouse plants, not less than fifty nor more than one hundred varieties, Wm. Kitzerow	7 50
Second best, Mrs. J. E. Williams, Madison	5 00
Best twenty varieties greenhouse plants in bloom, three exhibits, Wm. Kitzerow	3 00
Second best, Mrs. J. E. Williams	2 00
Best ten geraniums, three exhibits, Wm. Kitzerow	3 00
Second best, O. P. Freeborn	2 00
Best six fuchsias, three exhibits, Wm. Kitzerow	2 00
Second best, Mrs. J. E. Williams	1 00
Best display of flowers of all kinds grown by exhibitor, four exhibits, Wm. Kitzerow	5 00
Second best, O. P. Freeborn	3 00
Best display of ornamental foliage plants, not more than 15 varieties, four exhibits, Wm. Kitzerow	3 00
Second best, Mrs. J. E. Williams	2 00

CLASS 35.— *Flowers by Non-Professional Cultivators.*

Best and most artistically arranged floral design, five exhibits, Miss Kate Peffer	$5 00
Second best, Mrs. Geo. F. Brown, Madison	3 00
Best and most tastefully arranged collection of cut flowers, eleven exhibits, Mrs. A. A. Boyce	4 00
Second best, Miss Kate Peffer, Pewaukee	3 00
Third best, John Joy, Madison	2 00
Best and most tastefully arranged basket of flowers, six exhibits, Miss Kate Peffer	3 00
Second best, Mrs. Geo. F. Brown, Madison	2 00
Best pyramidal bouquet, five exhibits, Mrs. John Corscot, Madison	3 00
Second best, Miss Kate Peffer, Pewaukee	2 00
Best pair round bouquets, five exhibits, Miss Kate Peffer	3 00
Second best, W. T. Leitch, Jr., Dane	2 00
Best pair flat table bouquets, four exhibits, Miss Gertie A. Kellogg, Janesville	2 00
Second best, Mrs. J. R. Heistand, Madison	1 00
Best pair flat hand bouquets, seven exhibits, Miss Kate Peffer	2 00
Second best, Mrs. John Joy, Madison	1 00
Best bouquet of everlasting flowers, four exhibits, Miss Carrie Wildhagen	3 00
Second best, W. T. Leitch, Jr., Dane	2 00
Best display of Dahlias, not more than 20 varieties, three exhibits, Miss Kate Peffer	2 00

Second best, J. R. Brabazan, Delavan 1 00
Best ten named Dahlias, three exhibits, Mrs. John Joy, Madison..... 2 00
Second best, Mrs. A. A. Boyce, Lodi..... 1 00
Best display of Roses, two exhibits, Geo. Ringrose, Wauwatosa..... 3 00
Best five named varieties of Roses, three exhibits, Miss Carrie Wildhagen, Madison. 3 00
Best display Verbenas, eight exhibits, Miss Carrie Wildhagen, Madison 2 00
Second best, Mrs. J. R Heistand, Madison 1 00
Best ten named Verbenas, three exhibits, Miss Kate Peffer 2 00
Second best, Miss Carrie Wildhagen, Madison..... 1 00
Best show Asters in quality and variety, two exhibits, Miss Carrie Wildhagen 2 00
Second best, J. R. Brabazan..... 1 00
Best show Perennial Phlox, two exhibits, Miss Kate Peffer..... 1 00
Second best, Mrs. John Joy, Madison 50
Best show Pansies, three exhibits, Mrs. L. T. Malloy..... 1 00
Second best, Mrs. John Corscot, Madison... 50
Best show Double Petunias, three exhibits, Miss Carrie Wildhagen.. 1 00
Second best, Mrs. A. A. Boyce, Lodi..... 50
Best show Dianthuses (pink), three exhibits, Mrs. Geo. F. Brown.... 1 00
Second best, Miss Carrie Wildhagen 50
Best show Gladiolus, four exhibits, Mrs. L. T. Malloy..... 1 00
Second best, Miss Kate Peffer 50
Best show Phlox Drummondi, six exhibits, Miss Carrie Wildhagen.. 1 00
Second best, Mrs. L. T. Malloy 50
Best show Tube Rose, one exhibit, Mrs. A. A. Boyce, Lodi 1 00
Best show Lilies, two exhibits, Mrs. Geo. F. Brown 1 00
Second best, Wm. Reid, North Prairie 50
Best show Stocks, one exhibit, Mrs. A. A. Boyce, Lodi..... 1 00
Best show Balsams, three exhibits, Mrs. John Joy, Madison..... 1 00
Best show green-house plants, not less than twenty-five nor more than fifty varieties, Mrs. L. T. Malloy 5 00
Best ten varieties green-house plants, in bloom, three exhibits, W. G. Pitman, Madison 3 00
Best ten Geraniums, three exhibits, Mrs. L. T. Malloy..... 3 00
Second best, Mrs. John Joy, Madison..... 2 00
Best six Fuchsias, four exhibits, Mrs. John Joy 2 00
Second best, Miss Carrie Wildhagen..... 1 00
Best display of flowers raised by exhibitor, five exhibits, Mrs. L. T. Malloy..... 5 00
Second best, Miss Kate Peffer 3 00
Best show of ornamental foliage plants, not more than ten varieties, four exhibits, Mrs. L. T. Malloy..... 3 00
Second best, Mrs. W. G. Pitman, Madison..... 2 00

Special Premium by A. R. WHITNEY, *Franklin Grove, Ill.*

Best plate Whitney No. 20, four exhibits, A. J. Philips, West Salem. $3 00
Second best, George Ringrose, Wauwatosa 2 00

DEPARTMENT I.—MANUFACTURES.

CLASS 37.— *Stone Cutters' Work, Brick and other Building Material.*

Best roofing material other than shingle, one exhibit, H. G. Kroncke, Madison..... $5 00
Best display earthen ware by the manufacturer, one exhibit, Jos. M. Kuhles, Harvard ....Diploma

HOUSE BUILDING MATERIAL.

Best four window blinds, one exhibit, A. H. Severson, Stoughton.... $5 00
Best show of doors, sash, blinds, mouldings and other house building materials by manufacturer, one exhibit, Sam Steinsey.....Diploma

CLASS 39.— *Stoves, Furnaces, Hollow Ware and Articles of Hardware.*

Best cooking stove for wood, eight exhibits, John N. Jones, Madison, $5 00
Best cooking range for families, four exhibits, Frank & Ramsay, Madison..... 5 00
Best ornamental parlor stove, twenty exhibits, John N. Jones, Madison 5 00
Best display of stoves, two exhibits, Frank & Ramsay..Grand silver medal.
Best horse shoes in variety, two exhibits, Luekeker & Smith, Albion. 2 00

CLASS 42.— *Chemical Manufacture.*

Best sample carbonate lead, one exhibit, E. B. Heimstreet, Janesville. $3 00
Best oxide of zinc, one exhibit, E. B. Heimstreet, Janesville. 3 00
Best mineral paint, two exhibits, E. B. Heimstreet, Janesville..... 2 00
Best dyes, one exhibit, E. B. Heimstreet, Janesville..... 2 00
Best yeast cakes, one exhibit, Waterloo Yeast Co., Chicago, Ill..... 2 00
Best fancy soap, two exhibits, A. H. Hollister, Madison 2 00
Best potash, one exhibit, E. B. Heimstreet, Janesville..... 2 00
Best bicarbonate potash, one exhibit, E. B. Heimstreet, Janesville... 2 00
Best show of perfumery, one exhibit, A. H. Hollister, Madison, Silver medal.

CLASS 43. — *Carriages, Wagon Work, etc.*

Best double carriage, four exhibits, William Servis, Sheboygan Falls, ... Silver plate, $15 00
Best single top buggy, eight exhibits, William Servis, Sheboygan Falls.....Silver plate, 10 00
Best single open buggy, five exhibits, William Servis, Sheboygan Falls.....Silver plate, 10 00
Best trotting wagon, one exhibit, William Servis, Sheboygan Falls, ... Silver plate, 10 00
Best pleasure wagon, two exhibits, William Servis, Sheboygan Falls, ... Silver plate, 5 00
Best double sleigh, two exhibits, William Servis, Sheboygan Falls, ... Silver plate, 10 00
Best single sleigh, three exhibits, William Servis, Sheboygan Falls, ... Silver plate, 5 00
Best common farm wagon, seven exhibits, N. W. Manufacturing Co., Fort Atkinson..... Silver plate, 5 00
Best fancy lumber wagon, two exhibits, Fuller & Johnson, Madison, ... Silver plate, 5 00
Best display of hubs, spokes, and other wagon work, four exhibits, Webster & Lawson, Menasha.....Silver plate, 5 00

CLASS 44. — *Cabinet Ware, Cooperage, Willow Ware, House Building Material, etc.*

Best chamber set, one exhibit, J. E. Fisher, Madison ..... Silver medal.
Best extension table, one exhibit, J. E. Fisher, Madison, Silver plate, $5 00
Best center table, one exhibit, J. E. Fisher, Madison .... Silver plate, 5 00
Best lady's work stand, one exhibit, J. E. Fisher, Madison, Silver plate, 5 00
Best writing table, or desk, one exhibit, J. E. Fisher, Madison, ... Silver plate, 5 00
Best spring bed bottom, three exhibits, R. N. McIntyre, Jr., Oregon, ... Silver plate, 5 00
Best six dining chairs, two exhibits, J. E. Fisher, Madison, ... Silver plate, 5 00
Best dozen brooms, one exhibit, F. C. Schmidt..... Diploma.

CLASS 45. — *Leather and Leather Manufactures.*

Best six sides harness leather, one exhibit, M. Boehmer, Madison, Diploma.
Best carriage harness, two exhibits, Charles Hoebel, Madison, ... Silver plate, $10 00
Best wagon harness, one exhibit, M. Boehmer, Madison, Silver plate, 5 00
Best single harness, one exhibit, M. Boehmer, Madison.. Silver plate, 5 00
Best gent's saddle, one exhibit, M. Boehmer, Madison... Silver plate, 5 00
Best lady's saddle, one exhibit, M. Boehmer, Madison... Silver plate, 5 00
Best three trunks, one exhibit, M. Boehmer, Madison ... Silver plate, 5 00
Best four horse collars, one exhibit, M. Boehmer, Madison, Silver plate, 3 00

BOOTS AND SHOES.

Best and largest exhibition of sewed boots and shoes, V. Malec & Bro., Madison..... Silver medal, $10 00

CLASS 46. — *Paper, Printing, Book Binding.*

Best exhibition of plain and fancy binding, one exhibit, G. Grimm, Madison..... Dip.

CLASS 47. — *Textile Fabrics, Clothing, etc.*

Best fleece wool, American Merino, two exhibits, R. H. Mill, Palmyra, $5 00
Best fleece long wool, three exhibits, A. O. Fox, Oregon..... 5 00
Best exhibition of gents' hats and caps, one exhibit, O. E. Fitch, Madison..... Silver plate, 5 00
Best exhibit of furs and fur goods, one exhibit, O. E. Fitch, Madison, ... Silver plate, 5 00
Best six buckskin gloves, one exhibit, O. E. Fitch, Madison, ... Silver plate, 3 00

CLASS 48. — *Domestic Manufactures.*

Best kersey blanket, ten exhibits, Peter B. Doane, Dane Station..... $4 00
Second best, B. A. Graves, Platteville..... 2 00
Best ten yards home made flannel, four exhibits, R. J. Myers, Verona, 4 00
Second best, B. A. Graves, Platteville 2 00
Best ten yards home made colored flannel, four exhibits, B. A. Graves, 4 00
Second best, R. J. Meyers, Verona 2 00
Best rug of any material, twenty-five exhibits, Mrs. E. M. Williamson, Madison..... 4 00
Second best, Mrs Chas. Billings, Madison..... 2 00
Best fifteen yards rag carpet, fifteen exhibits, Mrs. R. J. Atwood, Madison..... 4 00
Second best, Mrs. F. R. Martin, Brooklyn..... 2 00
Best woolen stockings, fifteen exhibits, Mrs. E. M. Newton, Verona.. 2 00
Second best, Z. Wait, Portage..... 1 00
Best woolen socks, sixteen exhibits, Mrs. A. C. Bates, Janesville. ... 2 00
Second best, J. M. Patterson, McFarland..... 1 00
Best two pounds woolen yarn, six exhibits, Joseph De Jean, Rutland, 2 00
Second best, Mrs. R. J. Atwood, Madison 1 00
Best woolen mittens, seventeen exhibits, Mrs. A. C. Bates, Janesville, 2 00
Second best, Miss Emma W. Sharp, Madison..... 1 00
Best fringed woolen mittens, six exhibits, L. J. Patterson, McFarland, 2 00
Second best, J. M. Patterson, McFarland 1 00
Best white quilt, two exhibits, D. F. Salisbury, Fitchburg 4 00
Second best, Mrs L. R. Stewart, Brodhead..... 2 00
Best silk quilt, three exhibits, Mrs. Catharine Warren, Madison..... 4 00
Second best, Mrs. Mary Chilcote, Sun Prairie..... 2 00
Best log cabin quilt, nine exhibits, Mrs. Fannie Vilas, Madison..... 4 00
Second best, E. Newton, Oregon..... 2 00
Best patchwork quilt, twenty exhibits, Mrs. L. R. Stewart, Brodhead, 4 00
Second best, Mrs. Mary Chilcote, Sun Prairie..... 2 00
Best knit counterpane, eight exhibits, Mrs. J. Thorsness, Madison... 4 00

Second best, Elizabeth Seston, Mazomanie	$2 00
Best wrought counterpane, eight exhibits, Miss Anna L. Chambers, Madison	4 00
Second best, Mrs. Ada Fuller, Madison	2 00
Best worsted scarf, seven exhibits, Mrs. L. F. Biglow, Brooklyn	4 00
Second best, Mrs. J. H. B. Matts, Verona	2 00
Best wrought shawl, two exhibits, Mrs. E. M. Williamson, Madison	4 00
Best exhibition of taste and skill in cutting and making ladies' dresses by other than professional manufacturer, J. L. Peffer, Pewaukee	5 00
Second best, Miss Hester Craven, Madison	3 00
Best specimen gents' shirt, nine exhibits, O. E. Fitch, Madison	2 00
Second best, Mrs. E. M. Newton, Verona	1 00
Best specimen darning, eight exhibits, Mrs. Fred. Bartels, Madison	2 00
Second best, Miss Harris, Milwaukee	1 00
Best specimen patched mending, three exhibits, Mrs. C. P. Root, Verona	2 00
Second best, Miss Harris, Milwaukee	1 00
Best and greatest variety of articles of millinery, Miss S. J. Livesey, Madison	5 00
Best ladies' cloak, domestic manufacture, two exhibits, J. L. Peffer	4 00
Second best, D. F. Salisbury, Fitchburg	2 00
Best ladies' sack, two exhibits, Miss H. Craven	4 00
Best display in this entire class by one exhibitor, three exhibits, Miss Hester Craven, Madison	5 00

DEPARTMENT J. — FINE ARTS.

CLASS 50. — *Works of Art.*

Best portrait in oil from nature, three exhibits, J. R. Stuart, Madison,	$10 00
Second best, J. R. Stuart, Madison	5 00
Best original landscape in oil, from nature, work of exhibitor, five exhibits, Mrs. W. P. Stowe, Janesville	10 00
Second best, James R. Stuart, Madison	5 00
Best historical landscape in oil, from nature, seven exhibits, Mrs. W. P. Stowe, Janesville	5 00
Second best, Mrs. W. P. Stowe	3 00
Best animal painting in oil, from nature, two exhibits, James R. Stuart, Madison	5 00
Best specimen bird painting in water colors, two exhibits, N. A. Greenbank, Madison	2 00
Best portrait in crayon, from photograph, five exhibits, Mrs. Fannie Vilas, Madison	5 00
Best marine painting in oil, three exhibits, Mrs. W. P. Stowe, Janesville	10 00
Second best, Della Barr, Trempealeau	5 00
Best painting still life in oil, eleven exhibits, Jas. R. Stuart	5 00
Second best, Mrs. W. P. Stowe, Janesville	3 00
Best painting game life in oil, four exhibits, Mrs. W. P. Stowe	5 00
Second best, James R. Stuart	3 00
Best specimen game in water colors, one exhibit, N. A. Greenbank	5 00
Best specimen still life in water colors, eight exhibits, N. A. Greenbank	5 00
Best collection china painting, one exhibit, E. Coleman, Fond du Lac,	5 00
Best single piece china painting, one exhibit, Mrs. W. H. Hiner, Fond du Lac	3 00
Best water color painting on silk, two exhibits, N. A. Greenbank	3 00
Best oil painting on silk, two exhibits, James G. Burgess	3 00
Best painting on wood panel, seven exhibits, Miss Martha McClure, Baraboo	3 00
Best collection of paintings, water colors, two exhibits, N. A. Greenbank	10 00

Best collection of oil paintings, not less than fifteen pictures, three exhibits, James R. Stuart, Madison $20 00
Best India ink photograph, two exhibits, W. H. Simmons, Brooklyn.. 5 00
Best water color (stipple) photograph, two exhibits, Mrs. Frank Ricker, Madison 5 00
Best oil photograph, two exhibits, Mrs. W. P. Stone, Janesville..... 5 00
Best specimen steel engraving, two exhibits, Mrs. J. E. Williams, Madison 2 00
Best specimen photographs and other sun pictures made by exhibitor, one exhibit, A. L. Dahl, Madison 5 00
Best landscape photograph, A. L. Dahl, Madison 2 00
Best imitation of wood, marble and stone, one exhibit, W. H. Harnden, Madison 2 00
Best collection of stereoscopic views, Wisconsin natural scenery, one exhibit, A. L. Dahl, Madison..... 10 00
Best exhibition in penmanship, one exhibit, J. B. Silsbie, Janesville. 2 00

CLASS 51.— *Needle, Shell and Wax Work.*

Best sample plain sewing, seven exhibits..... .....
Second best, Mrs. A. C. Bates, Janesville..... $1 00
Best crochet or fancy knitting work, twenty exhibits, Lizzie G. Taylor, Madison..... 2 00
Second best, Mrs. A. Glagow, Madison..... 1 00
Best cotton tidy, twenty-nine exhibits, Miss Harris, Milwaukee..... 1 00
Second best, Miss Emma W. Sharp, Madison..... 50
Best worsted tidy, fourteen exhibits, D. T. Newton, Verona..... 1 00
Second best, Lizzie G. Taylor, Madison 50
Best specimen embroidered slippers, three exhibits, Patrick O'Malley, Mendota 1 00
Best specimen worsted embroidery, ten exhibits, Miss Schempp, Monroe 2 00
Second best, Lizzie G. Taylor, Madison 1 00
Best raised worsted embroidery, four exhibits, Miss Jennie Little, Tomah 2 00
Second best, Miss Ella Pouse, Madison..... 1 00
Best needle work or floss embroidery, ten exhibits, Mrs. Julia Harbeck, Appleton..... 2 00
Second best, Mrs. Fred Bartels, Madison 1 00
Best silk embroidery, sixteen exhibits, Mrs. L. R. Stewart, Brodhead. 2 00
Second best, Miss S. J. Livesey, Madison 1 00
Best worsted embroidered chair cover, four exhibits, Lizzie G. Taylor, Madison 2 00
Second best, Mrs. E. M. Newton, Verona 1 00
Best ottoman cover, four exhibits, Miss S. J. Livesey, Madison 2 00
Second best, Mrs. Fred Bartels Madison..... 1 00
Best sofa cushion, nine exhibits, Mrs. L. R. Stewart, Brodhead 2 00
Second best, Lizzie G. Taylor, Madison 1 00
Best specimen braid work, three exhibits, Mrs. W. P. Stowe, Janesville..... 1 00
Second best, Miss Hester Craven, Madison 50
Best gent's dressing gown, two exhibits, Anna G. Mann, Madison.... 3 00
Best sample of work in wax, six exhibits, E. Newton, Oregon..... 1 00
Second best, H. G. Roberts, Janesville..... 50
Best sample of work in feathers, three exhibits, Mrs. Fred Bartels... 1 00
Second best, Elizabeth Seston, Mazomanie..... 50
Best sample of shell work, one exhibit, C. Horton, Door Creek..... 1 00
Best sample leather work, one exhibit, Miss Katie Roth, Madison.... 1 00
Best specimen of bead work, four exhibits, Mrs. Fred Bartels..... 2 00
Second best, Mrs. H. B. Matts, Verona..... 1 00
Best exhibition hair work, six exhibits, Mrs. W. P. Stowe..... 2 00
Second best, Mrs. H. Fletcher, Ashton..... 1 00
Best lamp mat, nine exhibits, J. R. Brabazan, Delavan 1 00

Best toilet set, five exhibits, Miss Harris, Milwaukee	2 00
Best afghan, three exhibits, Mrs. Q. Barron, Madison	2 00
Best exhibition of Honiton lace, five exhibits, Mrs. W. P. Stowe	3 00
Second best, Mrs. B. F. Brown, Madison	2 00
Best exhibition any other kind lace, fifteen exhibits, Miss S. J. Livesey	3 00
Second best, Mrs. Fannie Vilas, Madison	2 00
Best exhibition applique embroidery, five exhibits, Mrs. J. G. Burgess	2 00
Second best, Mrs. B. F. Brown, Madison	1 00
Best exhibition Cretonne embroidery, two exhibits, Miss Harris, Milwaukee	2 00
Second best, Mrs. J. E. Williams, Madison	1 00
Best set embroidered underclothes, one exhibit, R. H. Waldron, Madison	2 00
Best set hand made underclothes, two exhibits, Mrs. James E. Burgess, Madison	2 00

For Boys and Girls under fifteen years of age.

Best specimen plain sewing, four exhibits, Mrs. E. M. Newton, Verona	$1 00
Best specimen penmanship, one exhibit, Miss Harris, Milwaukee	1 00
Best map drawing of Wisconsin, four exhibits, Miss Harris, Milwaukee	2 00
Best map drawing of United States, four exhibits, James Cranefield, Syene	2 00
Best collection of bracket work, one exhibit, C. E. Rexford, Madison.	3 00
Best single piece bracket work, one exhibit, C. E. Rexford, Madison.	1 00

The university farm of the state of Wisconsin, by its superintendent, Mr. E G. Hayden, made a very large and showy exhibition, as well as practical and worthy, but declined to compete for premiums.

REPORTS OF SUPERINTENDENTS.

DEPARTMENT E. — POULTRY.

By W. D. BACON, Superintendent.

The exhibition of poultry, which was quite as large as the room admitted without crowding, was very fine, and attracted a large number of visitors continually during the fair. No protests were made from the judges' awards. The aggregate sum of premiums for this department was $206, its division and distribution being satisfactory to all exhibitors. We recommend that the premium list stand without change for the current year. The birds shown were generally well bred, and numbered over six hundred against about fifty twenty-six years ago. The improved stock of poultry, although still far behind what it ought to be, is very much improved in whole flocks interspersed throughout the state, to the credit of enterprising and careful breeders.

DEPARTMENT OF AGRICULTURE.

By Dr. C. L. MARTIN, Superintendent.

We found at Agricultural Hall an exhibition of the farm and dairy products of Wisconsin that was truly gratifying. The agriculturists may well be proud of this exhibition, and also the dairymen may well be proud of their exhibition at this place, and also of the high rank that their products have attained in the markets of the world. The show of cheese was the largest we have ever had in this state, and of such a quality that nearly all came to the standard of ninety-nine, within one of what the judges call perfection. Long may they wave. If I live, and have the superintendence of that department, they shall have all the attention in my power to give, and I hope that every factory in the state will exhibit.

The display of bread, cake, jellies and preserves was not as good as usual. The secretary of the state fair has permission to purchase some glass cases to preserve these things from dust, and also from the fingers of tasters. Ladies, bring on your cakes; they shall be taken care of.

The exhibition of cereals was good. We had many samples of choice wheat, oats, barley and corn, the produce of numerous growers. Our old friends, Pilgrim, Wood, Smith and others exhibited choice samples of cereals, each striving to outdo the other. This is exactly right, gentlemen; come again.

The exhibition of the vegetable kingdom was just grand. No southern state can beat it. It surprised many that saw it, that such vegetables could be grown in Wisconsin.

The Experimental Farm made an excellent showing, both of cereals and vegetables, but did not compete for any premium. By the by, do the farmers of Wisconsin understand the motive of this Experimental Farm? I fear not. If I understand it at all, it is not to override, intimidate or discourage farmers in making experiments, but rather to encourage them, or rather, gentlemen, to do it for you, and, like the storm signal, give you notice of all failures and successes of all their experiments of new seeds and cereals; and if you will condescend to be forewarned, would save some from losing their crops. I well remember, in 1856, the experiments with the Fultz and Clawson wheat, also with the Bohemian Hulless oats, selling at ten dollars per bushel, pronounced by this very Experimental Farm to be worthless. Many who did not believe this I have no doubt found it true to their cost.

I do not believe that the Experimental Farm pays its expenses. No experimental farm can pay, because they are subject to many failures. They do not expect it to make money, but they do expect that the rock that splits their ship shall serve as a beacon to warn others not to run upon the same rock.

In conclusion, I desire to offer my sincere thanks to all the exhibitors of the agricultural department for the kindness and courtesy I have received from all for several years, not even having one unpleasant word from anyone. I shall be glad to see you all again.

DEPARTMENT I. — FINE ARTS.

BY W. W. FIELD, SUPERINTENDENT.

GENTLEMEN: Having been appointed superintendent of the fine art department for 1879, it becomes my duty, and it is with pleasure that I herewith hand you a brief report of the success which attended this branch of the fair, with some suggestions which I think of importance to coming exhibitions.

A fine display of White sewing machines were exhibited by Messrs. Boley & Ruste, of Madison. The Howe, American and Wardwell were also represented.

The works of art were numerous, and many of them of a highly meritorious character. The principal exhibitors of paintings in oil from nature, also marine and still life in oil, were Jas. R. Stuart, Madison; Mr. W. P. Stowe, Janesville; Miss Martha McClure, Baraboo; Miss Della Barr, Trempealeau; Mrs. D. T. Newton and Mrs. E. M. Newton, Verona. N. A. Greenbank, of Madison, made a highly creditable display of bird paintings and game and still life in water colors. J. C. Haight, of Madison, also exhibited choice specimens of still life in water colors.

A beautiful piece of china painting was exhibited by Mrs. W. H. Hiner, of Fond du Lac, and a magnificent collection of china painting by Mrs. E. Coleman, of the same city.

Fine specimens of oil and water color painting on silk, were shown by N. A. Greenbank, J. W. Gross and James E. Burgess, of Madison.

Miss Ida Mann, of Madison, had on exhibition paintings on wood panel, and in water colors, which attracted much attention for their real beauty and merit.

Miss W. H. Simmons, of Brooklyn, showed some very fine specimens of India ink, water color and oil photographs.

Beautiful steel engravings were exhibited by Mrs. Fanny Vilas and Mrs. J. E. Williams, of Madison.

A. L. Dahl, of Madison, made a choice display of stereoscopic views of Wisconsin natural scenery.

Exhibits in the class of needle, shell and wax work were very numerous, and equal if not superior in merit to former years.

I would suggest the propriety of transferring a part, or all, of class 48, domestic manufactures, to the fine art department.

I would also recommend that a larger number of premiums be offered, especially in classes 50, works of art, and 51, needle, shell and wax work, and that all second premiums in these classes be stricken out.

DEPARTMENT H. — MACHINERY.

BY H. A. TENNEY, ASSISTANT SUPERINTENDENT.

The following is a list of exhibitors, and number and kind of machines, devices and articles exhibited in division H., class 37, of the state agricultural exhibit for the year 1879, to wit:

By Stout & Davis, of Albion, an improved road scraper.

F. R. Lyon, Stoughton, improved self-adjustable rotary washer.

Warder, Mitchell & Co., Chicago —

No. 4 self-raking reaper and mower — Champion.
Single reaper — Champion.
Light mower — Champion.
New Champion mower.

Merrell, Beaty & Mathew, Independence, Iowa, feed steamer.

B. G. Alden, Chicago, Illinois, feed steamer.

Boorman & Dudley, Waterloo, Climax wind-mill.

B. Goldenburger, Madison, improved cider mill.

F. R. Martin, Brooklyn, Wis., strap-iron fence.

Fuller & Johnson, Madison —

W. A. Wood harvester and self binder.
W. A. Wood chain rake reaper.
W. A. Wood sweep rake senior reaper.
W. A. Wood sweep rake junior reaper.
W. A. Wood wheel gear mower.
W. A. Wood enclosed gear mower.
W. A. Wood moving attachment.
W. A. Wood feed grinding mill, by horse, steam or wind power.
McSherry drill.
McSherry broadcast seeder.

Fuller & Johnson, Madison —
Waupun fanning mill.
Monitor corn plow.
Vandevere corn planter.
Vandevere corn planter and dropper attachment, new style.
Taylor sulky hay rake.
Coats sulky hay rake.

Furst & Bradley —
Sulky plow.
Wood beam stubble plows, 3 varieties; iron beam plows, 3 sizes.
Self-dumping hay rake.
Hand rake.
Two stubble and sod plows; one prairie breaker.
One fine-tooth cultivator.
Draw beam walking cultivator.
Scotch harrow.
Freedman harrow.
McDonald harrow.
Met. frame sulky plow with friction attachment.

Johnson & Field, Racine —
Racine fanning mill.
Farm and warehouse fanning mill.

F. C. Curtis, Rocky Run, Storer wind mill.

Edward Hanson, Madison, Eclipse clothes reel.

Firmin, Billings & Noe, Madison, assorted lot of plows and improved fixtures.

Chilled Plow Co., Racine, Seaman improved chilled plows.

Harris Harrison, Stoughton, Rutland farm gate.

Vaughn & Co., Jefferson, Buchanan sulky corn cultivator.

W. E. Allen, Burnett Station, improved sheep rack.

Williams Harvester Co., Cedar Rapids, Iowa —
Williams' combined reaper and mower.
Williams' single mower.

American Grinding Mill Co., Chicago, Ill. —
Feedmill for horse power.
Feedmill for steam or horse power.

Appleton Manufacturing Co., Appleton —
Broadcast seeder.
Farm gate.
Wm. Schwandler, Appleton, Wisconsin improved double acting gate roller.
J. R. Davis, Sun Prairie, portable sectional roof for grain or hay stacks, etc.
Thos. Erdahl, Madison, self-binder reaper.
Van Brunt & Barber, Horicon, sulky horse rake.
A. S. Baker, Evansville —
Monitor wind mills.
Monitor iron pumps.
A. A. Abbott & Co., Chicago, self-dumping sulky hay rake.
C. Aultman, Canton, Ohio —
Canton monitor self-propelling engine; water and coal tank tender for same.
Improved separator; improved harvester and binder; improved reaper; improved mower.
John Lamont, Madison —
Prairie Queen breaker.
Deere stubble plow.
Dewey harvester.
Minneapolis reaper and mower.
Gorham corn cultivator.
Thompson corn cultivator.
Faust's hay loader.
Perry's hay tedder.
Lamont farm wagon.
Gilpin sulky plow, breaker and sod attachment.
Brown sulky plow.
Moline sulky plow.
Deere rotary drop corn planter.
Deere spring cultivator.
Superior force feed seeder.
Superior force feed drill.
Thomas' sulky rake.
Keystone sulky rake.

John Lamont, Madison —
Keystone corn sheller.
Keystone feed mill.
Keystone corn sheller.
Keystone poney sheller.
Keystone pet sheller.
Acme corn cultivator.
Triumph working corn cultivator.

M. V. Matteson, Milwaukee —
Climax combined reaper and mower.
Climax light mower.
Roger reaper.
Lion self-dump rake.
Howe's force pump.

D. M. Osborne, Chicago, Ill. —
Osborne self-binding harvester.
Osborne single reaper.
Wheeler combined reaper and mower.
Wheeler mower.

Cummins, Noble & Dodge, Dixon, Ill. —
Sulky plow.
Iron beam plows; wood beam plow.
Walking sulky cultivator; riding sulky cultivator.

O. H. Johnson, Rockford, Ill. —
Economist six foot reaper.
Standard mower, with tilting lever attachment.
Standard seeder and cultivator.
Corn cultivators, four and six shovels.
Standard horse corn planter.

S. L. Sheldon —
Challenge steam engine, manufactured by C. Krotz, Evansville, Ind.
Ames farm engine.
Watertown portable engine.
Aultman & Taylor, vibrator.
Single gear improved Marsh harvester.
Peerless combined reaper and mower.

S. L. Sheldon, Madison —
Light mower.
Meadow King mower.
Meadow King, with tilter.
Faust hay loader.
Buckeye improved broadcast seeder.
Buckeye grain drill.
Nine shovel Elwood sulky cultivator.
Six shovel Elwood sulky cultivator.
Esterly improved harvester.
Esterly improved seeder.
Pyramid of Kelly barbed wire fencing.
Rounder harrow.
Improved patent farm wagon racks.
Althouse, Wheeler & Co., windmill and rotary power
Briggs & Enoch, Rockford corn planter.
sulky plow.
walking cultivator.
Excelsior breaking plow.
Excelsior stubble plow.
excelsior turf and stubble plow.
H. N. Miner, Belmont, N. J., Lion self-dumping hay rake.
John Dodds, Dayton, O., Hollingsworth sulky hay rake.
D. S. Morgan, Brockport, N. Y., No. 1 Triumph reaper.
No. 2 Triumph reaper.
Seymour mower.
Birdsell Manufacturing Co., South Bend, Ind., clover huller.
Seymour, Sabin & Co., Stillwater, Minn., Minnesota Chief threshing machine.
Wm. Deering, Chicago, Ill., Marsh harvester and binder; Marion mower.
R. H. McCormick, Chicago, Ill., harvester and binder; improved iron mower.
Lion sulky rake.
Wm. Pier, Richland Center, wood sawing machine.
Baker Manufacturing Co., Evansville, feed grinder.

C. W. Grosscup, Lena, Ill., farmers' handy gate.
H. D. Baker, Leeds Center, Centennial wind mill.
Utter Manufacturing Co., Rockford, Ill. —
Broadcast seeder and cultivator.
New sulky corn cultivator.
J. H. Stoddard & Co., Dayton —
Triumph force feed seeder.
Self operating sulky hay rake.
Gaston & Co., Beloit, four ton stock scale.
J. W. Hudson —
Two cane mills.
Evaporating pan.
Horse power.
Farmers' furnace and boiler.
Road scrapers.
Three-shovel iron cultivator.
G. A. Williams Agricultural Co., Lake Mills, Challenge seeder.
J. W. Stacy, Monticello, Minn., Stacy's filler and grain tester.
Stout & Davis, Albion, steel road scraper.
W. R. Bearer, Elba, Wis., improved hay carrier.
R. Mickleson, Lodi, Wis., rachett wrench.
C. Sexton, corn and tobacco cultivator.
L. J. Bush, two chilled plows.
A. B. Campbell, Albion, Eureka harrow.
John Ollis, Norway, improved apparatus for making cement cisterns and wells.
F. M. Stevens, Menominee, lever attachment for broadcast seeder.
Althouse, Wheeler & Co., Waupun —
Feed grinder for wind mills.
Fanning mill.
J. I. Case Plow Co., Racine —
Racine center draft sulky plow.
Racine sulky plow attachment.
Twelve-inch Belle City breaker.
No. 34, wood beam plow.
Center steel arch wood beam plow.
No. 94, Racine Scotch Clipper.

J. I. Case Plow Co., Racine —
No. 72, center draft steel beam plow.
No. 74, center draft steel beam plow.
No. 74, center draft Racine Scotch Clipper plow.
Apron separator — centennial machine.
Fraction road engine.

B. C. Ferron, Milwaukee, Randall pulverizing harrow and cultivator.

B. B. Gates, Brockton, Ill., fanning mill.

H. A. Weber, Brockton, Ill., fanning mill.

John Warner, Prairie du Sac, Challenge harvester.

Wayne Agricultural Company, Richmond, broadcast seeder.

Van Brunt & Davis —
Adjustable force feed grain drill.
Broadcast adjustable force feed seed sower.

T. G. Mandt, Stoughton, Wis. —
Lumber wagon; light wagon.
Buggy; side spring buggy.
Bob-sled.

Gen. Jackson, Boscobel, Common Sense washing machine.

I. P. Bullis, Milton Junction —
Harrow, smoother and soil pulverizer.
Farm wagon.

B. G. Alden, Chicago, Champion steam cooker.

A. C. Kellner, New Diamond horse cultivator.

Jos. R. Luce, Stevens Point, Challenge movable cutting point circular saw.

J. S. Rowell Sons & Co., Beaver Dam —
Tiger grain drill.
Broadcast combined seed sower and cultivator.

Total entries, 225.

While many kinds of farm machines — especially those manufactured in older establishments — have reached a degree of perfection that as yet does not warrant material change, without a certainty of improvement, the inventive brain of the country has by no means been idle during the past year. A great variety of new and original devices have made their appearance, generally

to perfect previous machines. Among these are several to lessen the draft, simplify running parts, dispense to the greatest possible extent with cog wheels or gear; to equalize weight of parts and relieve extra strain upon the team; to regulate motions by the feet, rather than the hand, or to put that labor upon the propelling power; and, generally, to remove ascertained defects, simplify the parts, and to reach the end sought with the greatest possible saving of expense and power. Outside of this, but few new and striking inventions appear upon the list. As it is not within our province to point out specifically in what these changes consist, we shall not undertake to do so. Let it suffice to say there has been a material advance, and the restless and tireless genius of American inventors has graven permanent land-marks on the year since the last annual state fair, all in the direction of practical and enduring usefulness.

The modern plow probably represents the oldest agricultural implement in the world; the one that has attracted thought and study in all ages and countries, since civilization and permanent settlement first began. It has now reached a marvelous perfection, so much so that to discriminate between exhibitors would be as rash as superfluous. And yet the year has witnessed improvements in both detail and structure, in adjustments, form, and manner of construction, some of which are probably destined to stand all tests, and endure. Will the time ever come, indeed, when invention in this respect will halt; when perfection will be fully achieved? Probably not. For this reason, a suggestion is ventured, which, if it does no good, can at least do no harm. It is as to the one great defect, that as yet has eluded all remedy, in securing deep cultivation.

Practically, and in effect, generally, a plow may be considered a wedge drawn through the soil, turning over and loosening the surface, while at the same time, especially in heavy clays, it is compacting, smoothing, and, in time, hardening the surface beneath, so that what might have been friable and pervious, is rendered more and more impervious to water and the action of frost.

The result follows that the subsoil no longer fertilizes, and drouths and excess of rains are about equally disastrous. The

subsoil plow, as yet, has proved but a partial remedy for this evil, and is by no means in common use. The inventor who could place within, or in close proximity to the common plow, a cylinder or wheel with cutting knives or teeth, so adjusted as to stir the earth a few inches below the furrow, which would not clog, interfere with ordinary running, or materially add to the draft, would be properly ranked as a benefactor of the race. Such an implement would make available the *bottom farm* that underlies most of our state. We suggest it as the direction of greatest improvement — worthy of many trials and failures, if even in the end but partially accomplished. An inch more depth to the loose soil would add vastly to the aggregate bushels when crops were harvested. We make this suggestion at random, trusting that it may lead to experiments, and in the end, in some way, to the ripe result of successful discovery. The field of trial in this regard is not a new one, but they whose genius has evoked reapers, binders, and so many valuable improvements, may yet, if they try, secure greater depth to the plow. If they can, the age will have moved forward many centuries of progress at a bound.

Without disparagement to others, and not without diffidence, the following entries have been noted as worthy of special mention, either from original invention, adoption of valuable or new devices, greater perfections in whole or part, or applications rendering them especially noteworthy.

SPECIAL NOTICE.

G. W. Stacy, Monticello, Minnesota, the Stacy Filler, for filling the grain tester and half bushel measure, securing exact uniformity in filling and accuracy in weight. It is an invention widely endorsed.

Warder, Mitchell & Co., Chicago, New Champion mower.

Merrell, Beaty & Mathew, Independence, Iowa, feed steamer.

B. G. Alden, Chicago, feed steamer. In point of convenience and economy, both the above devices for preparing food for stock are regarded as specially valuable.

F. R. Martin, Brooklyn, Wis., toothed strap iron fence. Model shown. In combination with barbed wire, or by itself,

this invention promises to be of special value, as it makes a cheap, durable and *visible* fence, not liable to get out of repair, and no danger from horses or cattle running against it.

Fuller & Johnson —

W. A. Wood harvester and self-binder.

Vandevere corn planter, with dropper attachment. New style.

J. Thompson & Co., Norwegian sulky plow.

Furst & Bradley, self-dumping hay rake; metal frame sulky plow with friction attachment.

F. C. Curtis, Rocky Run, Storer wind mill.

Firmin, Billings & Noe, assorted plows and fixtures.

Chilled Plow Co, Racine, the Seaman general improved chilled plow.

Harris Harrison, the Rutland farm gate.

N. E. Allen, Burnett Station, improved sheep rack.

American Grinding Mill, Chicago, feed mill for horse power.

Appleton Manuf'g Co., broadcast seeder; farm gate.

Wm. Schwandler, Appleton, double action gate roller.

J. R. Davis, Sun Prairie, portable section roof for hay, grain, or other stacks, or exposed articles or machinery.

Van Brunt & Barber, Horicon, Wis., sulky horse rake.

A. S. Baker, Evansville, Monitor wind mill.

C. Aultman, Canton, Ohio, Canton Monitor self-propelling engine, water and coal tank; improved separator.

John Lamont, Madison, Prairie Queen breaker; Faust's hay loader; Gilpin sulky plow breaker with sod attachment; Deere rotary drop corn planter; Deere spring cultivator; Superior force feed seeder and drill.

M. V. Matteson, Milwaukee, Climax light mower; Roger reaper; Howe's force pump; Lion self dump rake.

D. M. Osborne, Chicago, self binding harvester; single reaper.

C. H. Johnson, Rockford, Ill., Economical six foot reaper; Standard mower.

Briggs & Enoch, Rockford, Ill., Rockford corn planter.

D. S. Morgan, Brockport, N. Y., per S. L. Sheldon, Triumph reapers; Seymour mower, lightest, and, it is claimed, the cheapest.

Birdsell Manufacturing Company, South Bend, Ind., clover huller.

Seymour, Sabin & Co., Stillwater, Minnesota, per S. L. Sheldon, Minnesota Chief threshing machine.

S. L. Sheldon, Madison, Challenge steam engine, manufactured by C. Krotz, Evansville, Ind.; single gear improved Marsh harvester, a fine specimen of home work; Faust's hay loader; improved Buckeye seeder with four feed: improved Esterly harvester; pyramid of Kelly barbed fence wire; Rounder harrow; farm wagon racks; improved McCormick iron mower.

William Pier, Richland Center, wood-sawing machine.

Utter Manufacturing Company, Rockford, Ill., broadcast seeder and cultivator; new sulky corn cultivator.

J. H. Hudson, cane mills; evaporating pan, etc.

G. A. Mills Agricultural Company, Lake Mills, Challenge seeder.

N. R. Beaver, Elba, Wis., improved hay carrier.

Althouse, Wheeler & Co., Waupun, Chicago feed grinder, for wind mills; fanning mill.

J. I. Case Plow Company, Racine, fine display of plows.

B. C. Ferron, Milwaukee, Randall pulverizing harrow cultivator.

B. B. Gates, Brockton, improved fanning mill, with adjustable sieves, etc.

T. G. Mandt, Stoughton, improved buggies and wagons, and numerous new devices therefor, among which are noted a spring to relieve team from weight of wagon tongue; adjustable reach; double strap support to sides of box; patent platform springs, and side springs for buggies, with improved draft attachment to axle, and several new features to strengthen cleats to tail board, and strengthen the wagon box, etc.

John Warner, Prairie du Sac, Challenge harvester.

Wayne Agricultural Company, Richmond, broadcast seeder, with improved hoe, steel springs, and without rubber, device new.

Van Brunt & Davis Co. —

Adjustable force feed grain drill.

Broadcast adjustable force feed grain sower.

I. P. Bullis, Milton Junction, harrow, smoother and pulverizer.

A. C. Kellner, Diamond two horse cultivator, with several new and valuable features.

Jas. R. Luce, Stevens Point, Challenge circular mill saw, with movable cutting points. This device is one of great utility and value to the lumber interest, enabling the changing or filing of teeth without trouble or delay, and without wear upon the saw plate, or diminution of its size by any amount of use.

J. S. Rowell Sons & Co. —

Tiger grain drill.

Broadcast combined seed sower and cultivator.

Edmund Hanson, Madison, Eclipse clothes reel.

G. A. Williams, Lake Mills, Challenge seeder.

Thomas Erdahl, Madison, self-binder. Model exhibited to twist and bind with straw bands.

Gen. Jackson, Boscobel, Common Sense washing machine. Embodies many new and novel features.

John Ollis, Lodi, apparatus for making cement wells and cisterns, with well on exhibition on the grounds, which attracted great attention. It is cheap, simple and durable, shuts out all surface drainage, and would be useful alike in city and country. The plan is new and valuable.

The quantity and variety of machinery on exhibition, while less in number than last season, was, in its numerous improvements and manifest advance for the purposes intended, in every way creditable and worthy of the occasion. The grounds were admirably selected and arranged, the steam power ample, and nothing was lacking on the part of Superintendent Torrey to the completeness and perfection of the exhibition. Notwithstanding the heavy rain on the third day of the fair, and consequent difficulty in exhibiting machinery to best advantage, the attendance was at all times large; and agriculturists did not fail to profit from the competitive display and practical exhibition of skill and devices, both old and new. Inventors, manufacturers and patrons here met face to face. The machines worked side by side, so that advantages in any one over another were plainly visible. The occasion was a memorable one, and its advantages to spectators will be lasting.

STATE AGRICULTURAL AND HORTICULTURAL CONVENTION,

Held at Madison, February 2d to 6th, 1880,

Under the auspices of the State Agricultural and State Horticultural Societies.

TUESDAY, 7:30 P. M.

The convention met in the Agricultural rooms in the Capitol, and was called to order by Hon. N. D. Fratt, president of the Wisconsin State Agricultural Society, who addressed the convention as follows:

Gentlemen of the State Agricultural and Horticultural Societies:—The time having arrived for the holding of our annual joint convention, I now call you to order. It is very gratifying to me indeed to see so many familiar faces present on this occasion, for it shows very conclusively that the interest in these conventions steadily increases from year to year.

Gentlemen, we have met here for a general discussion on all matters connected with agriculture, horticulture, mechanics, and the general products of our state. To compare notes, review the past, make suggestions for the future, and give the result of our experience to the world. There are probably conflicting views on some subjects entertained by different members present. It is both reasonable and right that there should be. Each member has the right to express his sentiments freely, and should be heard. Let harmony and good feeling rule the hour, and this, like our former conventions, will have a record that none of us will blush to own.

> "Clear the brown path to meet the coulter's gleam;
> Lo! on he comes behind his smoking team;
> With toil's dewdrops on his sunburnt brow,
> The lord of earth, the hero of the plough."

Thus the poet sings the glories of the farmer's toilsome life, and thus have they sung since the earliest songs that poets have sung, and many a time the farmer himself has turned poet and with true poetic fervor sung in worthy verse the hearty praise of his high calling. Surely there must be a sound reason for this in the nature of things, nor need we look far for it. I but repeat an oft proclaimed truism in your hearing, when I assert that the farmer's calling constitutes the broad base and firm foundation of true national greatness and prosperity; that people that can boast the largest proportion of strong limbed, sturdy, intelligent, contented sons and daughters of toil, proud of their calling, and, as a natural consequence, successful therein, dwelling in comfort and thrift all over her hills and valleys, and filling the ample storehouses and barns of her broad and fertile plains with golden products of intelligent labor, and peopling her houses and homes with youth, strength, vigor, and ambition to go on with the great work, is the strongest in all that constitutes real strength; the richest in all that forms the truest wealth, and the most promising in all that looks forward to human progress and worth.

For it is not true that

> "These are the hands whose sturdy labor brings
> The peasant's food; the golden pomp of kings.
> This is the page whose letters shall be seen
> Changed by the sun to words of living green.
> This is the scholar whose immortal pen
> Spells the first lesson hunger taught to men.
> These are the lines that heaven commanded toil
> Shows on his deed — the charter of the soil."

But to all this there is a way; a method. And he that would feel to the full extent the pride worthy of his position, must follow for his guide the plain law written for all who would succeed. It is often the case that science, in its investigations, sums up in a single saying a chart that followed truly solves many a dark problem, and perhaps among the many scraps and saws thus thrown out for our consideration and guidance, none more clearly express or more concisely define the great ruling idea of all excellence in our calling than the oft repeated phrase,

"The survival of the fittest."

To this principle, whether the phrase be familiar to him or not, the true and successful farmer turns every time, as to the polar star that is to guide him in all his agricultural ventures.

Is it to his crops that he is looking? The questions are, What crops are most certain of successful culture on my land? and what the most desirable in all respects when produced? Is it to the individuals of the crop that he looks for reproduction? With what care he selects his seed from the choicest, that "the survival of the fittest" may go on, and instead of deterioration, and the production of an inferior article, he may realize that approach to perfection that shall insure to him ultimate success.

To the stock on his farm, the same principle finds ample scope for successful and profitable application. The true farmer culls and selects carefully that which shall best fill its appointed place. From the rooster that crows his joy or defiance from the top of the barn yard fence, to the lordly bull that grandly rules the broad acres of pasturage, or the choice and valuable blooded horse, that promises excellence in that noblest of domestic animals — all must bow before this test, all must obey this rule. Sound sense demands that nothing shall remain upon the farm but that which best fills its station, best meets the want for which it was produced or kept, best promises success, or most surely tends to profit and perfection; thus again following the rule —

"The survival of the fittest."

But above and beyond all this, it seems to me that there is still a much more important sense in which we may strive for "the survival of the fittest."

It is the preservation of the best of the race of farmers themselves, in the person of their descendants. How well many of us remember, how, in the years of our boyhood, now long passed, that the sturdy race of farmers, literally men of weight and power, who dwelt in plain, substantial houses, full of comfort and plenty, and vigorous health, could look upon broad-shouldered, sun-browned and stalwart sons, grouped about their own cheerful fireside, with the fond pride of parental affection, and the confident hope that, in the not distant future, those sons would represent other farms as broad and fertile as their own, and the rosy-cheeked,

ready-handed, blooming daughters adorned the homes of their childhood in joyous content, adding to the comforts of all the household, shadowing forth those matronly graces that should in the future adorn other substantial farmers' homes, as their mothers had done before them.

In the older settlements, substantial school houses were well filled with attentive scholars during the winter months, and to the studious opportunities were ever opening for adding to their store of knowledge. The sayings of that wise old Spartan king, which often met the eye or saluted the ear of those who were brought up in the time of that worthy old book, the English Reader (I mean the original book of that name), that "boys should learn at school what they will be called upon to practice when they become men," was law and gospel to them, and formed the chart of their education. And, indeed, soberly and calmly considered, is there any better chart now? Quite generally, the most promising of the sons, the flower of the young men, remained farmers still. Able, intelligent, influential members of their several communities, they dwelt with their rural fellow citizens, became supervisors, select men, justices of the peace, members of the legislature, and often congressmen — good, honest ones at that. They lived happy and useful lives, died at a good old age, leaving behind them honored names. And here the great rule, perhaps not then formulated in that precise shape,

"The survival of the fittest,"

in his paternal calling was made to rule the land; and those beautiful daughters, after a peaceful home life, filled with all those noble deeds that grace the matron's character, grew old gracefully in their farm home, as noble specimens of generous and placid country grandmothers that gladden the hearts and win the love of all who know them, to the third and fourth generation. Is it not worthy the attention of our leading men; of those who are known and honored as wise, sound, practical farmers, who believe in their calling, in this great agricultural state, to inquire just how far this great rule is applied to the personal of their own calling: "The survival of the fittest." How much of the best blood of the country, born and bred almost to

maturity on the farm, goes forth year after year, in all its manly strength and womanly beauty and perfection, never again to return to the pursuit that made them what they are; and how much the farmer profession loses by this perpetual desertion of its choicest members, and how little, when all the results are considered, the deserters really gain to themselves in their exodus from the country to the city life.

"Poor drudge of the city, how happy he feels,
With the burs on his legs and the grass at his heels;
No dodger behind him, his bandannas to share;
No constable grumbling, 'You mustn't walk there.'
In yonder green meadow, to memory dear,
He slaps a mosquito and brushes a tear."

Nor in all this do we appeal to ignorance, or stupid contentment, to retain the sons and daughters upon the farm, which is their birthright. Let intelligence be the rule. Let real, practical knowledge spread all over the land.

Let the pride of every profession be to attain perfection in all that pertains to excellence in that profession. Let the saying of the wise old Spartan king become a familiar household word to all. And let boys (and girls) learn at school what they will need to know and to practice as men and (women), and let them ever be taught to bear in mind, that all of life that is worth living for, is not in show and parade, in pride of position, equipage and calling. But that

"Honor and shame from no condition rise;
Act well your part; there all the honor lies."

And this leads me to the real topic of this paper. How often as we travel about the state, in its highways and its by-ways, here and there by the road side, you note a little desolate, dilapidated building, set down as if by mere chance, upon some neglected and almost useless corner of earth, not a shade tree in sight, not an article of beauty near, not a vestige of comfort to be seen, not a touch of good taste manifest, and not a chance for amusement or recreation connected with it. I don't know whether I have described the country school house in your neighborhood or not; but I have described several located not a thousand miles from where I live.

In it, too often, cheapness places incompetence from three to six months in the year to furnish the merest rudiments of an education. Of course the sons and daughters of all who can in any way furnish the means, must and will find their way to the towns and cities in search of that knowledge and education which should be found at their very doors. Life in the city, at the high school, at the academy, the college, the university, or the female seminary, in an atmosphere of intellectual activity, has all the ten thousand charms of novelty, the exquisite sense of awakening mental powers, of freedom from farm drudgery, of exemption from contact with much that is offensive to the nicer sensibilities of the young. The daily social converse with the more active city mind, the sense of improved personal appearance, and the wearing away of any lingering awkwardness, together with the great central fact of a keen sense of awakened cultivated intellectual power never before felt. All these and many other influences and allurements at the close of his alloted time in school, send the boy back to the farm with discontent in his heart, deep seated and incurable.

It is almost with loathing that he once more takes up his daily farm occupations, so different in every way from his city school life, which becomes to him a cherished memory of joy departed; and mentally he registers a vow that he will get out of that as soon as he is able to do so. And so after a similar intellectual, social and literary experience, the girl returns to the laundry, to the dairy or to the farm kitchen, fresh from the academic fields of poetry and literature, glowing with the intellectual triumphs and attainments of her school life, and missing all that brightness and elegant ease and leisure from her life, she mopes in discontent until an opportunity occurs to escape it all by a plunge for city life. There has stood upon our statute books for years a law which, properly carried out, will furnish an efficient remedy for much of this discontent, and which would preserve to farm life many of its brightest ornaments, to the happy profit of all concerned. The high school law was designed to meet just such wants and to remedy just such evils.

Let the well-to-do farmer who now spends his money in send-

ing his boys and girls abroad for an education, call about him the leading minds of his town and devise the ways and means for establishing such a school in every well settled township. Let them select the choicest spot convenient for all, and build such a building as will furnish ample accommodations for the advanced scholars of all the town, and maintain such a school in it as will obviate the necessity of any one going away to attain a good practical education, and much of this will be changed. Now certainly it is worthy of careful discussion right here; are we on the right track educationally? Grant that such a school has been organized in any town, peopled with able and successful farmers, within reach of the older sons and daughters of all these farmers. The boy and his sisters, perhaps, or neighbors would go from their own homes and firesides each morning, and return to the same again at night.

Home ties are not severed, and home duties and pursuits are uninterrupted. All the familiar social ties of the neighborhood woven into his very life, remain unbroken, and no new allurements supply their place; a pride in his school, associated with his intellectual pursuits and acquirements, will cheer him on, and around such a school as a centre, lyceums for debate, lectures, reading circles, essays and music, with now and then a taste of more decided social pleasures, will spring up, which will fill the place of the city school, and all the young people of the district or town participating, displacing no home ties, interfering with no home duties, disturbing no home relations, but rather strengthening them all. As each one excels, it will be his pride to maintain his preëminence where he won it.

And again, in its highest, best, and noblest sense, agriculture will have maintained its primal creed:

"The survival of the fittest,"

as applied to their own members.

Mr. B. B. Olds, Clinton — The idea expressed in the address on the school question is approved by me. I have urged it in my town for years, but I cannot make the people see the point. I can

show that they would save nearly five hundred dollars a year, after the first outlay, by establishing a school like the one proposed; figures will show it. It is strange to me that they cannot see it.

Mr. Broughton — Is there a man here that will say that it is not just the plan?

Mr. Fratt — I don't know, I am sure. It is a matter I indorse pretty thoroughly. I have had considerable experience in this matter, and I feel that it is true.

Hon. W. W. Field — I could not help thinking, while the paper was being read, that what you said I knew to be true from actual experience. Now, sir, I find, when I come here to Madison to spend the winter, as I have a great many winters in the legislature and otherwise — not having any great amount of labor to perform, some little mental labor but no very great tax upon one physically or mentally — that it is pretty hard to go back and take hold of the plow. There is not that excitement about it.

President Fratt — A great deal of the poetry is taken out of it.

Mr. Field — Yes, a great deal. There is not that social intercourse and pleasure that we have here in mingling together; and I have no doubt the same is true of our children, and if the remedy can be applied as intimated in that paper it will certainly be of very great advantage, for I believe all will concede that when our children are educated in cities they rarely go back to farming or pursue agricultural pursuits, and if there is any branch of business to-day which requires brains, energy, skill and culture, it is the farm; and as agriculture advances day by day and year by year, and we produce more from the soil, it is more necessary that we should have this increased ability to compete with people in other portions of the world; and if our children can be taught in the common school and in the higher schools, which may be established in towns, to maintain their home influence, their home surroundings, and all those things which will benefit them in after life and make them more happy in their calling, more contented upon the farm, it will be better for the world. I was very happy to see the president touch upon this point, and hope it may be discussed at some little length.

President Fratt — While this address is under discussion, perhaps I ought to say a few words myself on the subject matter therein contained. Some twenty-five years ago I bought what was called the Captain Weed farm, containing about two hundred acres of land, situated two miles west of the city of Racine, and in the spring of 1855, moved on to it, and settled down to my first experience in farm life. Have raised a family of six children—three boys and three girls. Was blessed with a good district school about eighty rods from my house. My children were all sent to this school until they could be advanced no further there, and one by one they finally drifted into the city, to the high school or academy. My eldest son was sent to the Jefferson Liberal Institute, at Jefferson, Wis., preparatory to taking a position as accountant book-keeper in the First National Bank, Racine, which position he still occupies, with a very decided preference for that business instead of farming. My second son graduated at the academy of John G. McMynn, Racine, and is now in his second year at our state university, taking the course of civil engineering and surveying, that has always been his hobby; and rather than spoil a prospective good engineer, to make an unwilling farmer, I have encouraged him in his undertaking. My third son also graduated at the academy of John G. McMynn, Racine, and is now in his first year at our state university. Has not decided upon any particular profession, but has determined to try some other occupation before he settles himself down to the pursuit of agriculture.

Thus you may see that after all these years in operating one of the finest farms in the state, with all the modern improvements, plenty of all kinds of fruit, well stocked, and everything that is necessary to make a rural home attractive near the city (perhaps too near), and not one son out of three raised on the farm, to take my place, I have come to the conclusion that the old homestead (where I have passed the happiest portion of my days) must eventually pass into other hands; and when I cast my eyes over other farms in the neighborhood, who have all raised boys, the question naturally comes up, Where are they? Yes, where are they? They have nearly all drifted into other oc-

cupations, and their places are supplied by hired help, who have not had the advantages of a city education. If we want to keep our boys on the farm, we must not send them to the city high school or academy. We must spend more money on our district schools, and make them better, so that our children can be educated at home, and keep around them at the same time the influence of home, for it is an absolute fact that of all the boys sent away from home to school, nine out of ten never return with satisfaction to their former occupation.

Now, do not understand me to say that I am opposed to thoroughly educating our boys, *for I am not.* I am in favor of bringing them up to the very highest type of perfection, which can only be reached by a generous, practical, broad-gauge education.

Prof. W. W. Daniells, of State University— If the farmers do lose these young men, there is something on the other side we ought to look at, and that is, the good of the world! The world still has the good that lies in these young men. Some statistics have lately been gathered in regard to the lives of a large number of business men, I think by Rev. Washington Glidden, the editor of *Good Company*, a semi-religious family magazine, and a famous minister of the Gospel at Springfield, Massachusetts. He finds that very much the largest portion of the business men of the cities are sons of farmers. While we may regret that these bright boys do not always remain on the farms (there must be, I think, for the good of society in all respects, an intermingling of all these different classes), when we know that farmers' sons furnish to a large extent the successful business material of the world, I think we may congratulate ourselves on that fact.

Mr. Field — I want to say a word there; whether, if we could keep a part of these young men who graduate at our seminaries and colleges, upon the farm, it would not be far better for agriculture and about as well for the varied business interests which they pursue? I think it is true that we lose the large proportion of the young men who become educated, and that the most of the agriculture of the country is carried on by men who are more ignorant than those engaged in the various professions and businesses of life — not to say that farmers are, as a class, by any

means what may be termed an ignorant class. A great many of them are not what might be termed educated or cultured men, but yet they may be pretty well educated in their particular vocation or calling. But I am of opinion that agriculture would make greater progress and would be stimulated to advance to a greater height, if more of our educated young men could be retained in that kind of work.

It seems to me that it can be done in no other way so well as to have them educated at home; but yet I see there is a difficulty surrounding it all. When we have taxed ourselves to build and conduct our common schools, most of us feel that we have taxed the entire community about all we ought to. I think myself we have. I think it is very questionable whether we ought to tax the entire property of the country to educate the masses beyond a common school education. I think if they desire to go further — and there is a desire among very many at this time to do so — they should do it at their own expense. I believe that nine-tenths of the young men who are educated beyond the common schools at their own expense, who rely upon their own resources, are the best educated men we usually have. I am sorry to say I have not a son to educate, but if I had, I do not think I would ever give him a single dollar to help educate him after he had acquired a good common school education. I would say to him, "If you desire to go further, earn your money. Go right out into any active employment you desire and earn your money; then expend it in acquiring an education. You will then feel self-reliant and strong when you obtain the education, and you will then be able to battle manfully with the world when you go out into it."

Now, then, I think I could point to numbers of young men in this state who have been furnished money to acquire an education, and I believe that that very money has done many of those young men great harm. In some instances it might not injure them; probably it would not if they had minds well balanced, been brought up and trained at home in all the virtues, and have been taught there to be self-reliant and strong in their youth. I presume they may come here and be furnished money for their

education and their board, and set forth and go through and make the best of citizens and the best of business men; but I think it is not the rule. I think the rule is, that the more you make them relf-reliant, by having them earn their own money and by having them feel that they must sustain and support themselves, the better it will be for themselves and others.

Mr. Clinton Babbitt, of Beloit — Mr. Anderson suggests that some one ought to talk on the other side of the question, but it would be pretty unfortunate perhaps for any one else but me because I expected Mr. Field would take the other side. He informed me a few minutes ago, on the other side of the chamber, that he always advocated the side of the under dog in the fight. Whether he made a truthful statement or not is for you to decide. As far as I am concerned, I could not impute to Mr. Field anything but a truthful intention; but if Mr. Field had a son, and he proposed to make him educate himself after a certain period — after he had received a common school education — I should like to ask him, at present prices which farmers can afford to pay, how long that young man would probably be, in a short life like this, in attaining to a position which we would call manly, a position which would entitle him to be regarded as one of the agriculturists of the state of Wisconsin?

There are two sides to this question. It is indeed pleasant to see an elegant high school within our reach, within the reach of our children. Every honest man, every citizen of Wisconsin, every farmer ought to encourage them; he ought to do everything in his power to extend and disseminate education. But it all costs money; and if our laws, if our positions are not such, if our politics, our religion, our everything, is run in such a way that we have all we can possibly do as farmers just to keep both ends together, I should like to know whether there is not a great probability, if we go in for the school house, that we shall lose the farm?

Now these are rather sad reflections. It is indeed an unpleasant thing for farmers to look right straight at the facts that actually exist. We are represented in congress to-day — not by farmers; we are not represented by men who know really what

toil is, other than that which comes in the way of the education of the brain. How can we expect young men, the sons of our working farmers, keen, bright, smart fellows, in this day of progress, how can we expect them to come back to the farm, or earn their living by the sweat of their face. They see their father come in from his daily work, tired, disheartened and discouraged. They see him begin to feel in both pockets, when his hired man comes in and looks as though he would like to go to the circus, to find out where the fifty cents is to come from. They are keen; they notice all these things. Now I want to ask you, how in the world can we expect, with this state of things existing — farmers paying pretty much all the expenses of the government, paying their own expenses, paying for their pew rent, and all they give to the poor, for we have always had them with us since Jesus Christ said they should be with us; they have always been with us and always will be — I would like to ask you how we can expect that bright young men like these are going to come back to the farm and go to work. It is not the way to earn money — no mistake about it — where land is as high as it is in the state of Wisconsin.

Now I am a farmer. I earn every cent of the money that sustains a large family from the farm — every dollar of it; but I tell you gentlemen, from experience, that it is not half as easy, not a third as easy, not one-twentieth as easy, as it was for me to earn as I did, for year after year, three thousand dollars on the road, by meeting the boys and tending to what is called a city profession. We have got to look to this thing. We have got to educate our boys, and we have got to see that the men who run our politics, the men who handle our money, really are men that are honest, who will look out for our interests and for the interest of the state; for it is true,

> "Ill fares the land to hastening ills a prey,
> Where wealth accumulates and men decay.
> Princes and lords may flourish or may fade;
> A breath can make them, as a breath has made.
> But a bold peasantry, their country's pride,
> When once destroyed can never be supplied."

Mr. Kellogg — It seems to me there are three sides to this question. I want to go a little further back than either of the other speakers, and come down to the drudgery of the farm. Here are farmers who have boys that have not got through their milking at nine o'clock at night, lots of them. They are up in the morning at five o'clock — I speak now of the boys. As soon as they are old enough to milk, they partake of the drudgery of the farm. In harvest time, they are expected to keep up with the men, do all the chores, and use the poorest tools. Look through the country, and see how many farm houses have surroundings that are attractive to the youth. See how many farm houses there are without a single shade tree; without a flower; without any of the beautiful works of horticulture; without any fruit in the garden. It is pork and beans, hog and hominy, week after week, year after year. There is not one farmer in ten who has a decent strawberry bed. You can raise strawberries by the bushel as easy as you can potatoes, and yet, here you are, living on potatoes and salt pork year after year. I would like to know why these bright boys should wish to go back to the farm.

Mr. Field — Do you suppose they would if you were to feed them on strawberries?

Mr. Kellogg — Yes. They do not have one hour in the twenty-four they can call their own. They do not have half time to sleep. I would like to know how many boys have been pulled out of bed when they wanted to sleep an hour longer. Your city folks are hardly able to get up at nine o'clock; can hardly get out to conventions at that hour; but on the farm, the boys have to get out at five o'clock, summer and winter. I would like to have the home surroundings, the beautifying effects of horticulture, the fruit and the shade trees, brought into the question.

Mr. Webster — I cannot expect to talk here as can my friend Professor Daniells, and some others who are present. I am not used to talking in public, but I have a word to say, after all, as I am a farmer. I have farmed for thirty-five years in Wisconsin, though on a small scale. I have raised two boys, and have tried to educate them; did what I could in our own town; then I sent them to Columbus. One I sent here to Madison a few terms, and

then I sent him to La Crosse. The other I sent to Ripon and Milwaukee. My thought is that farmers do not pay enough attention to this matter of educating their boys. I hear great complaint among the farmers here that the lawyers are filling the assembly chamber and the senate, and that the farmers' boys are not elected. The reason is they do not know enough. Their fathers did not teach them enough. If our boys were educated we could send them to fill places and occupations that they are not now capable of filling. I do not believe in keeping my boys on pork and beans, hominy and *squeal*. I believe when we raise the things ourselves we ought to have the best. I believe we owe it to ourselves not to sell the best and keep the poorest. If we raise a fat steer, keep him and eat him, and so with other things. We can do it and pay our taxes. I have always paid mine. My oldest boy I have with me on the farm to-day. My youngest says he thinks he is a little too smart; that he can get a living more easily in some other way; but he is good to work when he is at home. He wanted me to get him a place in Madison this winter; thought he could fill any place. He is now enrolling clerk in the senate. As I said before, we ought to have the best of everything ourselves — the best flour, the best meat. I do not believe in driving the boys out by feeding them on hominy and *squeal*. We should do the best we can for them, and if they wish to go away and are smart enough to get a living off the farm, let them go and help them do it. As to pulling them out of bed at five o'clock in the morning, I did not have to do that. When it was necessary to get up early, I got up and so did they. I do not believe in making slaves of boys.

Mr. N. N. Palmer, of Brodhead — If this discussion goes on in this manner much longer, I think we had better all go home soon, or we will get sick of farming. Instead of benefiting the farmers, we will all get disgusted, and it will have a damaging effect. I agree with the last speaker in some respects — if we raise anything that is good, keep it ourselves, and if there is any left let the city folks have it. If I raise any specially choice apples, they go into my barrel for my own use. If there is anything that will make things pleasant at home, I try always to consider that first; and so far I do not think my children are getting very much discontented

with being on the farm. On the contrary, they all dislike the idea of leaving home in order to go to school. That is the reason I said amen to what the president said. If we could have a school where our children could be educated near our own homes, even if we had to drive four or five miles to reach it, they could get up at five o'clock ; they would feel interest enough in getting an education to do it if it was necessary. I do not think this farmer's life is as dark as some of you have made it appear. It surely is not if we only take the right course. There are so few of our boys who go away to get educated, and when one does go to school, he finds an influence there which carries the idea all the time that farmers are slaves, mud hoppers, and all that sort of thing. There is so much of that, because there are so few representatives of the farmers in any one school that they get it impressed on them after being there a number of terms, and the prejudice becomes so strong that they cannot get rid of it. Then there is another point. Some of the boys have a natural inclination toward the different professions, while others take as naturally to the farm — are natural farmers — and education will not hurt them, in my opinion.

Professor Daniells — I hardly think this is a very profitable subject, but I want to say one word in reference to it. There seems to be an impression that there is a vast amount of sneering at a farmer's son the moment he gets off the farm. That is nonsense. I have been at the university, and I was a farmer's son. I left the farm twenty years ago this month and have been connected with schools ever since, and I have no notion that I was ever made fun of because I was a farmer's son, nor have I ever known of any such thing in schools among students. Among our students men stand just as they stand among men, according to their ability and their faithfulness in business, and I think that is the case among students everywhere. There is no notion that because a man comes from a farm he is to be sneered at; nothing of the kind. The only thing that I ever knew approaching it was, when I was in college, a tutor prayed for the strong boys from the country. One of the boys was made angry by the allusion, but I felt a little better for that tutor's prayer.

Mr. Palmer — That was a thought that came to me from some of the talk I have heard here. I have never been in the habit of feeling or thinking that way.

Hon. Thos. H. Sheldon, of Darlington — This question interests me very much, whether all the intelligence must in some way pass off — exhale from the farm life. If you should hear the history of my neighborhood, I think it would illustrate the point we are talking about better than anything else. I have seen in that neighborhood, within a mile and a half of my home, though I am not a very old man, I have seen boys grow up to the age of manhood, of whom four are dentists, two are doctors, two ministers, three lawyers, and two merchants. All these in the forty-five years I have lived on my farm. These young men were men of intelligence, bright, smart men, and because they were bright, smart young men, the farm could not hold them. They began with a common school education, and they went to Darlington, and you might say finished their education. They went immediately into professions and mercantile pursuits. I could go on and illustrate the matter further in the same way. It has become a startling fact.

Mr. Field — Will the gentleman allow me to ask him a question. Why was it, if they were smart and active young men, that they could not be kept on the farm?

Mr. Sheldon — Because the only idea connected with the farm in their mind was drudgery. Their parents were negligent.

Mr. Field — Were those that did stay rather weak minded?

Mr. Sheldon — I can say that in some way the intelligence of that neighborhood was eliminated. It passed off somehow; it evaporated from the farm life. That is a fact we cannot deny. It is a startling fact, and one that I dislike to admit, because I feel that intelligence is required on the farm as much as it is in any other pursuit in life. I believe what Horace Greeley said, that it takes a smarter man to run a farm successfully than it takes to run the bank of North America or the city of New York; I believe that. Any dolt can earn his bread, can get his potatoes and keep himself from starving; but the question is, how to bring intelligence on the soil and make it

honorable. That is the question for us. If any man can solve the enigma, I would like to see it done. My experience convinces me that it is a fact that intelligence passes into the city. Go into the city of Chicago and look around. I am startled at this fact, that I support that city. I support all those men there. They do nothing. The city of Chicago is not wanted, and the men in it do nothing. What do we want? What are we supported by? We earn the food we eat and the clothes we wear. What do they do? Nothing! I support them, feed them and clothe them. I pay all their taxes. That is the simple fact.

Mr. Griswold — I will tell you in a very few words why they leave the farm. It is because it is universally known that other kinds of work pay better. Smart young men know very well that any other business pays two dollars to every one that is made on the farm; then how do you expect any shrewd young man to remain and prosecute the business, when he knows some other business in which he can make double the money. The object of every man in following any business is to make money. I would not stay on the farm three weeks longer if I could have the news that I could make two thousand a year at some other place. I would leave just as soon as possible. This is the reason that your sons will not stay on the farm.

Mr. Gill — There have been a good many sides to this question already, and still I do not think any one has really touched the side of the question that I think was the most prominent in the paper read. It was in regard to the necessity of town high schools being established in towns, to give the rural population the means of obtaining a higher education without going away from home. I have been considerably interested in the question of town high schools myself. I am a farmer and I have a family. I have seven children in the district school now, and I have one in the state normal, so you see I am a little interested in this school question. The question with me is, whether these town high schools can be made of practical value without too much additional expense to the community. Now, as Mr. Field says, I think probably as a general thing we are taxed fully enough for educational purposes, though I never complain myself of the

amount of the taxes if the money is only properly expended and used to the best possible advantage.

President Fratt — I would like to ask if sending the boys away to school is not a greater tax than building a school house?

Mr. Gill — I am coming to that. In every town there are probably from fifty to a hundred students in the high schools, or academies, or higher grades of schools. Even if they study in the private select schools set up in the village, or if a few go off to another village, attending a higher grade than their village graded school, the expense of their education in these schools, the aggregate expense, amounts to actually more than would support a town high school. I have no doubt at all about that. Besides, there is this disadvantage of having them go away from home, which some of the gentlemen have said causes a dislike to home and farm life. I do not believe all that exactly, any more than I do friend Kellogg's description of a farmer's living. I believe, as far as I know anything about it, that farmers live well. They work hard, and generally die poor; but I do not believe in this hog and hominy theory, because I know better from my own experience, and that of my neighbors. They live on the best the land affords. I know they used to say, in former days, about twenty years ago, when I first commenced farming in Wisconsin, that Wisconsin farmers sold all they raised, and what they could not sell they fed to the hogs, and what the hogs would not eat they ate themselves. It is not so with me, nor with our people to-day. But this question of schools, as alluded to by our president, was, how our town high school system, as provided by law, could be made practical and useful, and I think it can, without becoming any greater additional expense to the community, taking everything into consideration.

Now I do not know why any one should murmur at seeing the smart boys go off the farm into some other occupation. It is merely a matter of the survival of the fittest. The one that stays on the farm is no doubt the best fitted for the farm. I don't murmur at seeing the bright boys go off. It gives a chance for the dullards. What could they do if obliged to compete with the smart ones? And the one that makes a good politician would

probably make a miserable farmer. Muscle is not all that is necessary to make a farmer; it requires some brains as well as a good deal of muscle. I know that muscle is a very necessary assistant to the brain in farm life.

Mr. Field — I think it requires a large amount of brain and a large amount of muscle.

Mr. Gill — The main question in this high school matter is, whether or not they can be made practicable in the general run of our country towns, so that a higher class of education can be feasible for the whole community without any additional expense. That is, as I look at it, the real question before the convention.

Mr. Babbitt — I would like to hedge my speech just a little in reply to the member of the legislature from LaFayette county. He says that the people in such a place as the city of Chicago do not do anything, and still Professor Daniells informs us, and it is a fact which we all admit, that the city of Chicago is controlled to-day by the farmers' sons of the several states of this Union. Now if I had boys old enough, it would do me good to have them go right straight to Chicago and get into the channel of life there. He asks, what does the city do? Why, gentlemen, it builds our railroads. It furnishes facilities for taking your grain to market.

A member — It pays the freights?

A.— It pays all it agrees to. They look out for themselves.

Mr. J. W. Wood, of Baraboo — I move that the discussion on this subject be confined to five minutes at a time, and that no man have the privilege of speaking the second time without permission of the convention. I wish to talk on this subject, and am willing to have the five minute regulation passed before I commence. I have been struck by many points while listening to what has been said. The president's expression, which is time-honored now, in relation to the survival of the fittest, applies with special force to this business of agriculture, this business of farming, in which we are all supposed to be engaged. The fact is, the competition is so sharp, and the enemies with which we have to contend are so numerous, that unless a man is well informed and keeps himself in the front ranks of agricultural improvement, he will inevitably fall behind. And now in reference to this matter

of educating the boys. I have had some experience in that direction from the inside track, and I have looked at it from the outside as well. Mr. Field said that he would not help a boy beyond giving him a common school education, and would let him work the rest out for himself. Now the fact is that if a boy has got the material in him which will take an education, you cannot hurt him by helping him, and if he has not got that material, you cannot put it there by any process which you can adopt. It has got to lie intrinsically within the boy himself, and if he has the perseverance and the necessary quality of mind, that will secure an education in the end.

I tell you there is nothing that can come more gratefully and more gracefully than for such a boy to have the help he needs. I have seen young men attending colleges where they had to work their own way, and had to go out and teach and break in on their own terms, and it was almost always unfortunate for them. They kept along with their classes, would study as well as they could while they were out of school, but when they go back and go through the examination which will restore them to their place in the class, there always has to be a little concession made to them. They do not attain to the degree of scholarship they would if they had just been helped enough to keep them in college.

In reference to this matter of farming, I may perhaps be allowed to allude to some of my own experience in life. When I was a boy my father moved to the southern part of Wisconsin, and there were no opportunities for education then — no district schools at all at that time. It was at quite an early day, and the work of improving the farm pressed us on every side. We had to make our own opening, everything which we had or hoped to have, and my youth passed away entirely in labor. From the year I was ten years old until I was eighteen I had no schooling whatever — never entered the school-house door. When I was eighteen years old I went to school two months, and that was all the schooling I had until I was thirty years old; but I had a hungering for an education all th i

In 1849, when the California fever broke out, and some of us went there, we heard great stories and had wonderful dreams

about the possibilities of the country. I went across the plains. I did not know just how much gold I might be able to get; did not know whether I would come back with one barrel full or ten, but I believed there was a great deal there, or hoped there was, and it was my dream all the time in crossing the plains, that if I succeeded I would come back and have this education I had hungered for all this time; I would go to college. I stayed there about three years, and my success was somewhat limited. When I came back, I had a little money with which I might start in life, but I had not enough to give me the education which I desired, and so I was compelled to abandon that dream again. I engaged in farming, and I invested what little money I had brought home. I came back just at the close of the hard times, a few years ago; cannot remember the date. I invested, and went to farming, and was very successful in my investment. I married, and had two children; and after three years of farm life I sold out, and found myself in easy circumstances. Then the feeling came back, that I must have an education. It was a hunger within me; it burned there. I started to go to a little select school which had been started up in the neighborhood, when I sold the farm. I bought some books, and found I had not the preparation I needed to make those books profitable to me, so I went to school two months. It was a kind of a disease on me. I felt that I must have an education. I was acting as justice of the peace at the time, and was called upon considerably to render services in that capacity, and I refused, while I was going to school, to attend to any business of the kind; was threatened with prosecution, but I would not bother with it. I was bound to get the education.

At the end of two months, I left school; I had something better in my mind, and I went to Ann Arbor without letting any body know, and I spent a week around that institution looking at the facilities presented there, and quietly made arrangements so that when I came back I did not go to that school any more, but I went to Ann Arbor and took a five years' course in the university — graduated there. I was now over thirty years old, and I saw college life clearly, not from the position of a boy, but

from that of a man. I saw the inside and the outside of it. There were students there among them, young men with wealthy parents, who sent their children to school. Such boys never made proficiency. They never spent their time profitably; but when a boy came to school because he wanted to come, and had it in him to learn, if that boy could get help from his parents, it would do him good, and such boys are to-day honored men, and occupy many honorable positions in life.

Mr. Field — What proportion do you think would have made proficient scholars if they had been furnished with money?

Mr. Wood — I should think about half, not more than that.

I am not satisfied with this feeling that is so prominent in this convention that everything we do must be done from a money standpoint. There is a radical error in that, and when we talk to our boys, we talk as though success in life meant simply the gathering together of money; as this friend said here, if he could get two thousand dollars a year, he would leave his farm.

Now when I got through with this, the world was open to me. I had many opportunities where I could have taken salaries, but my hunger for farming came back to me. I studied it very deliberately; I thought of it on all sides. Now, I want to call your attention to some things which led me back to the farm. I noticed that salaried men were always dependent for their success upon the good will of others; that they could not be independent; that it was popularity that they must possess, and that it was favor they most needed in order that they might hold their salaries; that without a moment's warning, just because some little prejudice was taken against them, they were liable to lose their positions; and unfitted as they were for the toils and duties of life, be cast out and made to depend upon themselves. I could by no means accept such a position as that. I must have something where I could be my own master; where if I believed anything, I could speak it, and where nobody could interfere with me. And so I went to the farm, the most independent spot on the earth. God makes his rain and his sunshine to fall on the harvest, and there is no influence big enough to get between us and God's sunshine and his rain, and all this talk that we have about

making money, and teaching our children that nothing is a success that does not gather in money, just makes me think that we are a company, who, like Bunyan's men, are digging in the earth and getting more money. Now, why shall we not teach our children that there are better things and a nobler life, and that manhood is worth more to them than money?

Mr. Stickney — It is true that we are in a very bad fix in this matter of losing all our boys, and yet, when we get into trouble, we can sometimes gather a crumb of comfort by comparing our condition with the condition of others. Now while this fact exists, that all our bright boys hurry off to the city and take the good positions of influence and honor and trust in business, let us stop a moment, and think of what becomes of the city boys. Where do they go to? Are we willing to change places with the city parents to-day, and take the chances of their boys? Come to think of it, we are not so very bad off, or worse off than anybody else, after all.

One other thought. While it is an undisputed fact that the average farms of this state, yes, I may say the best of the farms, have not had half their resources developed, ought it to be so very hard to make money on them, and to obtain all the comforts and many of the luxuries of life? I think not. I think that while there is so much in all of our farms that is still undeveloped resources, lying latent, but costing us money for taxes, there should be a way found to utilize those resources, and bring them out, and make it easy to prosper on the farm, as easy as in any other calling.

One other thought, and I am done. Have we all thought of taking into consideration that education — that is, outside of schools and outside of books, on the farm, that which can be brought to bear by every father upon his son, the influences that can be thrown around every family, and the interest in the business of that family — is always in our reach, and in nine cases out of ten is utterly ignored or forgotten. If we have not thought of that, let us think of it now, and do what we can to put it in force.

A paper was then read by J. W. Wood, of Baraboo, on the

USE OF POISON IN HORTICULTURE.

A member — I would like to ask Mr. Wood just how he manages to poison wood-chucks.

Mr. Wood — As I intimated, I put strychnine into squash seed. Wood-chucks are very partial to squash vines and squash seeds, and that is about the only way I have been able to reach them. I have soaked the squash seed, but if you don't do that you can raise the side of it and put the strychnine in.

THE QUESTION BOX.

For the purpose of giving an opportunity for discussing subjects not embraced in the regular programme, a box was provided for the reception of questions.

General Bryant, the secretary, upon opening the box said this was a new thing in our conventions. It had been practiced in Massachusetts, and as he was born in the heart of the commonwealth, he must be excused for patterning after the state that burned witches and tunnelled the Hoosick mountains. He then read the first question as follows:

What will prevent fire blight?

Mr. Jordan — The prevention of fire blight is a subject that has occupied a good deal of my attention and study, and possibly the results of my experience and practice may be of some benefit to those here who have been troubled with the blight more or less. I commenced whitewashing my trees some eight years ago with lime and soft soap or lye, for the purpose of making my trees more healthy and keeping the borers out. While practicing this my trees blighted the same as did those of all my neighbors. Two years ago I saw that sulphur was recommended to be used in whitewashing trees to prevent the blight. I slacked my lime as usual, and was very careful to slack it in such a way that it would remain on the bodies of the trees. While it is slacking, I put in about a fifth part of sulphur, and thus make a paint; make it about the consistency of thick paint. Then I wash the trees thoroughly, letting the mixture run in around the

cracks next the ground and up well into the limbs, filling the crotch full. I have practiced this for two summers. There are some gentlemen here who visited my place during the last year, who will bear me witness that through our section of the country there is not, with the exception of my place, a garden or an orchard that has two Transcendent trees but what they have suffered with the blight, while I have one hundred acres under orchard and not a Transcendent has blighted in two years past. A year ago this last summer I did not have a twig of any kind blighted. This last season I had a little blight commence in one corner where my man in slacking the lime, contrary to orders, had burned the lime and it had washed off the trees early. I then had a sprinkler prepared, a duster rather, about the size of a gallon can, perforated on one side. I filled this with powdered lime and sulphur, and while the dew was on or right after a rain storm, I dusted those trees that had commenced to blight, and the blight then stopped and did not spread over the balance of my orchard. I have read a great deal on this subject. Mr. Purdy, of Elmira, New York, says in his *Recorder*, that the blight can be controlled with such positive certainty that it is only an evidence of shiftlessness for a man to allow his pear trees to blight, so I think that will apply to us who are trying to raise fruit trees. By and by, when we are passing a man's orchard and see his trees blighted, we shall consider it as great an evidence of carelessness as when we see his fences down.

Another man in the *Fruit Recorder*, says he has a specific for tree blight. He uses copperas water thickened with lime or sulphur. If he thickens with sulphur, the result may be the same, but he don't question but that copperas itself may be a disinfectant. Scientific men believe that blight is a fungus disease, possibly an animalcule fungus. What the blight is I am not prepared to say, but this is the result of my practice in the use of lime, and I think that every gentleman who is troubled with the blight will find it is worth trying, at least.

Mr. Wood — Mr. B. F. Adams gave us quite an exhaustive paper on the subject of blight at our convention last year, in which he gave us the result of recent investigations, and it shows

at least that it is a very obscure disease, and that it is of very obscure origin, and that many theories that are propounded in reference to what causes it and its remedies, do not hold good long; but Thomas Mahon, who is editor of the *Gardener's Monthly*, of Philadelphia, and who is high authority on all such matters, says absolutely that a wash of a weak solution of potash will prevent the blight.

Mr. Jordan — Why will not strong lye mixed with whitewash have the same effect?

Mr. Wood — It would.

Mr. Jordan — Well, it doesn't.

Mr. Wood — It strikes me that while the blight appears in the leaves and the branches, putting a wash on the body of the tree would be like putting a wash on your foot for a sore finger. I should think the thing would be to prepare a pump or a sprinkler and to throw the wash up on the trees, and let it fall on the leaves, and if this lime and other material applied to the body should be effectual, how does it reach the leaves? If it should be an emanation rising up through the tree, a little application on the top of the tree would certainly be good. I think we ordinarily know pretty near when this blight sets in. There is a certain murkiness of the air that makes us think of blight before it comes.

Mr. Jordan — It generally follows these muggy thunderstorms, and consequently the Germans often say it is struck by lightning.

Mr. Wood — I noticed the expression was used, "a weak solution of potash." It might be that a little of the solution sent over your trees would be cheaper and more quickly and easily done, and would accomplish the thing directly, while your application to the bodies is quite remote from the seat of the disease.

Mr. Jordan — The eating of the pudding is generally the test of the thing; and it is worth while for every man who is building an orchard to whitewash his trees for two reasons, aside from the blight. First, to keep the borers out. If you whitewash your trees thoroughly, letting the whitewash fill the crevice that is always between the tree and the ground, on account of the wind pressing your tree, you will never be troubled with the root borer,

or the borer in the body or crotches. If you whitewash about the first of June, that is when they lay their eggs, and they will not deposit them on a whitewashed place. Secondly, it makes the trees more vigorous, and preventing the blight is a great object. In the southern part of Minnesota they have suffered much from the blight.

Mr. Tuthill — This matter of blight has been before the world for a great many years. It appears sometimes to pass over twenty or thirty or forty years, and there is no one who has ever found any remedy that they could justly claim was a remedy. It is well enough to try this. I talked with Mr. Barry, of western New York, a few years ago, and with John J. Thomas and Mr. Smith, of Syracuse, and Mr. Dunn. Several of us talked together about this matter of blight, and they all agreed it was not a thing they knew anything about. They had found no sure remedies. It came and went. Now as to the idea that it comes at the times when we have great heat. I have known blight in some of our coldest summers. Some of our worst seasons of blight have been very cold summers. It is not confined to the fruit trees. We see it in the young oaks in the groves, young, thrifty, healthy trees, and it destroys them. It is more fatal to the oak than to any other tree. I would not discourage the use of this remedy; it may be good, but still the whitewashing of the trees is, I think, a more simple remedy, and one that can be more readily applied, and come into common use a great deal more easily than washing with lye or whitewash. I believe that the application of an alkali to the tree is beneficial, and we can apply that to the whole tree, branches, twigs, and every part of it, and we can do that readily, and it is better than to apply anything to the trunk merely.

The scattering of dry ashes when the trees are damp and before the leaves appear, is a complete washing. It does not do the tree any particular good to put soap on it. That is, the oil or grease in the soap is not what we are after. It is the alkali, the ashes; and if put on in the way I suggest, it will stick to the tree through the summer, and even the rains will not wash it off, and it forms a coating. It is necessary to put it on the tree when there is not much air in circulation, and when you can throw it onto

opposite sides of the tree. It will be a complete washing not only of the body but of all the small twigs; and it is an effectual remedy against the bark-worm. I have seen trees that were badly infested with bark-worm completely cleaned out by using ashes in this manner. I think that washing the bodies and limbs of trees may be good, but I believe it is better to wash the whole tree, and you can do that effectually by sprinkling ashes on the tree when it is damp.

Mr. Adams — Do you know anything about the application of linseed oil? I have seen, I cannot tell how many recommendations of it for the prevention of blight.

Mr. Tuthill — If pure linseed oil was used on the tree, either on the body or the limbs, I calculate that it would stop the circulation. If it penetrates through the bark, as it undoubtedly would, it would prevent the circulation of the sap, and, I should think, would injure the tree. I knew a gentleman once who had his plum trees badly injured, and he asked his neighbor what he had done for his (they were being destroyed by something), and he said he used kerosene oil. He applied the kerosene oil to his trees and it killed them. Afterwards he accosted his neighbor and said, "Why, I used that oil and it killed my trees." "Well," said the other, "so it did mine!"

Mr. Jordan — I find that people are apt to fall into something they have heard recommended. I have not been entirely free from that myself. At our horticultural meeting, a couple of years ago, somebody recommended painting fruit trees with chemical paint, such as we use for the roofs of our houses and barns, to keep rabbits off. It is a great deal better on roofs than it is on fruit trees. I killed four or five hundred Wealthy trees, by painting them. It taught me a lesson, so I thought I would put my linseed oil away, for it penetrates the Wealthy. The Transcendent it does not injure, but it kills the Wealthy. Some of these gentlemen who are skeptical in regard to the use of sulphur for the blight, let them about the first of June thoroughly whitewash their trees with lime and sulphur and try it thoroughly. I heard one man say he knew it would not keep the blight away, for he had tried it. I asked him when he whitewashed. He said

"In the fall;" and I said, "Of course it would not if you put it on in the fall; but if you put it on in the spring, then tell us next year what your experience is."

Mr. Philips — I want to talk a little about the blight. I presume I know as little about the blight as anybody else, and just as much, too. Brother Wood cannot see where the application comes in of a poultice to the foot for the cure of a sore finger, or an application on the trunk of a tree to cure the blight. Now my experience is, that anything you can do to retard the growth of the tree, retards the blight. A tree that is a free grower is the soonest to blight. Transcendents are charged with spreading the blight the most. If you can plant a Transcendent in one place, and give it thorough cultivation, so that it will grow thriftily, and put another somewhere else, and sod the ground around it, this last tree will not show a particle of blight in five years, while the other will.

A member — Nor any fruit.

Mr. Philips — Yes, it will. There are men who claim that if you whitewash a tree, paint it, or put anything on the bark of it, you thus injure the circulation and retard the growth, and that the bark should be washed clean, and have a chance to grow. My impression is, that if you daub this whitewash on thick you may possibly retard the circulation, and so stop the blight. Why is it that a tree growing in the sod does not blight, and another one growing a rod from it does? They get the same atmosphere, the same circulation of air and the same summer showers, and how do you account for it? So with this matter of the whitewash. I can account for its preventing the blight in no other way than that it retards the growth of the tree; but how it does it I don't know.

Mr. Jordan — I would say that the whitewash does not retard the growth of the trees. I have been whitewashing mine for eight years, and a more healthy orchard cannot be found. One gentleman who had whitewashed his trees, told me it made them grow faster.

Prof. Daniells — It has been said that the Persian Insect Powder is a poison. It is not a poison to anything but flies. It is

the flower of a particular species of plant that is pulverized. I mention this that no one may be prevented from using a most excellent remedy for flies. There is no danger whatever in its use. It is made from the petals of a flower ground very fine. This flower grows in Palmatia.

QUESTION PROPOSED BY A. D. M'DONELL, OF VERONA COUNTY.

"How shall we get rid of our straw with the most profit?"

Sec. Bryant — I would say that I do not know this gentleman, but he wrote me a letter asking to have this question proposed. To open the subject I will state how I get rid of mine. I don't raise any.

Hon. M. Anderson, of Cross Plains — The greatest trouble with me is to get enough. When I first came to Wisconsin, some of the farmers told me that they got rid of all their straw by burning it. I told them I would be very glad to get a straw pile. I could not get enough. I had about a hundred acres of very heavy straw this year, and when I was home the other day, I found I would have to get more before spring. I not only use all I can raise on the place, but frequently I have to buy. The farmers are getting wiser now and don't want to sell it. I can use up all I can raise on my farm, especially in a winter like this, and two years ago I had to buy a great deal. There are several ways of using it. When I am sowing winter wheat, I like to spread it all over the crop in the field. I thinks it helps to keep the snow on, especially in a country where the snow is liable to drift. I also use it for bedding for the cattle, and for sheds and so forth. The best way I can use it, is to bring it into my stables and work it up into manure. I take it out as often as once a week. If you have cattle stables, it will not do any hurt if it stands there a month; you will find a very fine quality of manure at the end of that time. The question seems to me a very simple one. I think there is no difficulty in using the straw now. There was years ago. Either make it into manure or spread it over the fields. I would have no hesitation in putting it thinly over wheat fields.

Mr. Morton — I think I have had some little experience in find-

ing out how to get rid of straw. When I came to Rock county, about fifteen or twenty years ago, my neighbors had their cattle running about in the winter storm, trying to get shelter wherever they could, and in the fall and spring of the year you would see fires all over the country — the straw stacks were burning. And I said to some of my neighbors, "What in the name of heaven do you burn your straw for?" They said it was because it was in the way when they wanted to plow the land. I said, "Why don't you have it in the farm yard and shut your cattle up at night, and they will eat some and lie warm and they make manure." They said, "O, yes! make manure for us to have the trouble of taking it away in the spring." "But don't your land want manure?" "Oh, that is all you know about it; the fact is you know nothing about this country at all; the land is so rich we don't know what to do with it." I told them they would wear their land out by and by and then they would want manure, and I think the farmers are now beginning to understand it. They make warm sheds, where they let the cattle lie and make manure, and they are glad to haul the manure out in the spring and put it on the land. That is a receipt for getting rid of the straw; and if you do not want to carry it out in the spring, let it lie on the ground and rot, and the heat of the manure will kill all the seeds that are in it. You will not spread the seeds in the land, and if you put it in in the fall every seed will be destroyed. If you take it green and raw and put it on the soil, you are spreading seeds. I think it is an easy matter to answer the question, how to get rid of the straw. You are breeding cattle and horses; make manure and put it back onto the land. It puts me in mind of the way they do things in Ireland. They take all the money and spend it somewhere else, beggaring the country. You take a crop from your land every year and put nothing back, and you will beggar your land. You must carry something back; you must carry back manure, and then you are all right.

Mr. Webster — I have had some little experience, and I wish to say one word. I keep a good many sheep and some cattle, and I find that the sheep use the straw to a great deal better advantage than the cattle. They eat a good deal, and the rest they

work up very fine, and in the spring it is all ready to draw out on the land.

On the prairies they used to have a rope to draw the straw away when they threshed, and then they burned it up. Now they say that we men in the openings can raise better corn than they do on the prairies, and I think it is partly because of our saving our straw and getting out all our manure every year. We want to bed our stock; sheep eat up a good deal more than cattle, so we get more benefit from the sheep than we do from the cattle.

Prof. Daniells — I know of a large farmer in this county, who is a very intelligent man, and I think a very excellent farmer. He keeps a large number of cows, raises a large amount of straw, and lets his cows lie on the bare boards. I don't know whether he burns the straw or not, but I should think that would be a necessary consequence.

Mr. Sheldon — I never knew of but one man who set fire to his straw. This winter a neighbor of mine set fire to his straw stack, and that set fire to his wheat stack, and burned the whole thing up. I must say I could not sympathize with him very much.

A few years ago I used to stack my straw in the field, thinking that when it got sufficiently rotted, I would scatter it around; at last I found that did not work, so I began taking it and scattering it around the barnyard.

Mr. McDonald — The gentleman before me has found it a very easy matter to get rid of straw by drawing it into his yard for the purpose of making manure, and then drawing it out again. I find that a rather laborious way to get rid of it. I think on the whole the fire is the easiest and the quickest.

Mr. Webster — I think my plan is the most profitable. I was not speaking of the *ease*.

Mr. Anderson — The idea strikes me that the easiest way to get rid of straw, and make a profit out of it, is to cut the grain when it is green and stack it in the proper manner to keep dry; let it stand until late in the fall, and thresh it, and put up the stack in a good workmanlike manner, and feed it out, and you

will work it most all into manure. The cattle will eat nearly the whole of it, and it is better than marsh hay.

Mr. Olds — Some of these western men would think that these are small fisted farmers who are talking to-night. Possibly they have not straw enough. What will they do when they go out to these farms in Minnesota? There you will find many farms of thousands of acres cultivated to wheat. I have seen farms there where they have let the straw remain year after year in piles where they had threshed until it had become almost as big a nuisance as the stumps in the east. Let some man tell us how we can get rid of straw out in the western country where they have such large farms.

Mr. Jordan — Those large farms you are talking about in Nebraska, etc., you will find that by and by the land will become exhausted and they will become bankrupt. That is as sure as you are born. They will be bankrupt and the farms will be ruined until somebody gets them and divides them and begins to bring manure upon them and cultivate them again. A farmer, large or small, should keep cattle of some sort, that will make his straw into manure. Horses will use a great deal of straw, particularly wheat straw or oat straw that is cut tolerably green, which it ought to be. It does not hurt the grain at all, and horses and cattle and sheep, and all the ruminating animals, will eat it; and you surely do not recommend a man to keep three or four thousand acres of land, and keep growing wheat and straw. We are talking about what is best for farmers in general, and not about this fellow out west that has ten thousand acres. That is not worth thinking about, because it should not be, and it will not be long. Those are the men that want to own everything. If they owned twenty thousand, they would want to join somebody else, and they will be bankrupt by and by, or ought to be. But we are talking about the general farming community, and we want to know how to get rid of our straw. My idea is that we should keep cattle and horses and sheep to eat it up. What they don't eat they will lie upon and it will keep them comfortable, and you know that nature requires so much food in order to produce the degree of heat necessary to carry on the circulation of

the blood, and the animals must have it, and there is a good deal of it in straw, and they will eat it, and what they don't eat they will make manure of, and that carries back on to your land just what you have taken off by your wheat crop, and keeps your land in good order. You must carry it back in some shape, either in chemicals or manure.

Mr. Kellogg — There is one point in regard to the scattering of manure on the land, whether it should be put in piles, or whether it should be cast broadcast, as Mr. Anderson states; which is the best plan, and the most productive of good?

Mr. Morton — You can try that in a small way on your garden, or your field. You carry out your manure, and put it in a pile in your field, and turn it over once or twice during the summer, that there shall be no dry rot in it. It will create a large amount of heat, 120° at the least, and it will smoke; and if there should be any places that have the dry rot in it, turn it over with the pitchfork, and it will heat again. It is not much labor, but it must be thoroughly rotted. Now every seed of every weed that is in that manure pile will be destroyed, and not one will germinate. Now if you think rotten manure does not do more good than the dry straw, just try it and see. I tell you it is forty times as good. It is as good as any plaster, or anything you can put upon your land, and it is the most natural manure in the world, if it is thoroughly rotted. Now take your straw and spread on your ground; you don't receive much benefit from that for the first or second year, but you will have plenty of weeds growing. You carry back the seeds of the weeds, and they are scattered all over the ground, and you will find your wheat full of them. Try a small patch, and see if it is not so. But if you thoroughly rot the manure, you will not find a single weed that will germinate. That is my experience.

Mr. Burdick — I received a letter to come up here to attend the agricultural love-feast, saying that every one had the privilege of telling his experience. It is a well-known fact, where I am acquainted, that I am greatly interested in the cultivation of grasses. I would say to the farmers here, those that have a surplus of straw that they do not know what to do with otherwise,

that it makes one of the best dressings for our land of anything that can be used. I will say here in regard to the killing of the rag-weed, that it has been successfully done simply by a thorough dressing of the soil, and a healthy seeding with a combination of seeds suitable and adapted to the conditions of the soil; then let it be well dressed with two or three inches of straw over it. In this manner we have entirely eradicated those weeds. Then again, you may dress your meadow lands either in the spring or in the fall, and put a dressing of straw on them. It forms a compost which holds the moisture, which is requisite and necessary for the plant until it has gained strength enough to take care of itself. Very often we lose our seeding simply on account of the lack of proper covering. Hence here is one way in which we can dispose of a large amount of surplus straw to good advantage.

Mr. Morton — I think I could readily believe that the dressing of straw would keep off cold winds in the spring and also the sun. I think you are right so far; but when you say, give a covering of two or three inches of straw, would you not kill the grass as well as the weeds?

Mr. Burdick — That has not been my experience.

WEDNESDAY, 9 A. M.

The convention met, with President Fratt in the chair.

J. M. Smith, of Green Bay, President of the State Horticultural Society, read a paper on the "Elements of Success in Gardening."

On motion of Mr. Field, it was ordered that each person present be invited to make remarks upon the papers; such remarks not to exceed five minutes to each speaker.

Mr. Wood — As I have listened to this paper by President Smith in which he has given us an imaginary case, I have felt the essential truthfulness of the picture which he has drawn; and though he has termed it Mr. A. and Mr. B., we can find the parallels in our everyday life.

Now the aim of the address is evidently to awaken such feelings in men as shall induce them to make their homes so agreeable and pleasant that they will become attached to them, and

that this restless spirit of emigration which has for the last forty years affected the American people, shall be in some degree checked; and as I listened to his address, and realized the fact that probably there isn't a man in this room forty years old and upwards who is not himself an emigrant, and who has not found it to his advantage to have been an emigrant, I have tried to think how far this process of emigration may be carried on, and still be as profitable to others as it has been to the people who are here present.

We know that when this country was first settled railroads were unknown in the west. I was a man of some years before the first railroad reached Chicago and pushed on west from that point. The country was settled by people who took up small tracts of land on which they purposed to make homes, and Wisconsin and Illinois are essentially a land of homes where people have gone to make homes; and the question came to my mind, as long as this spirit prevails, of persons finding themselves under adverse circumstances to go west and make homes, it is not so much to be deprecated. We know that New England has lost by this process, and that while New England was the home of so much that was thrifty, excellent and noble, and while perhaps it never can recover in the eyes of the world the position which it once maintained, yet the gain is greater than the loss, and therefore not to be regretted.

Since the railroads have increased through these countries, and the countries beyond are being settled up, this same law of emigration for the purpose of making homes is not so general. We read of those bonanza farms where men go, as President Smith has remarked, and take a township or more, just for the purpose of sweeping off the wheat which they may gather for a few years and making money out of it, and ruining it or injuring it for homes.

In this view I do not believe that the idea of future emigration is as important as it has been in the past; and that it is desirable to foster a spirit among our people by which they will become attached to their homes, and settle down into the idea that they will remain there, and possibly their children after them.

Now we know that the strength of a state consists in the intelligence and patriotism of its inhabitants. We know that the very nature of patriotism is love of home, primarily. That is the root of the love of the state. We know that a people who are not patriotic, who do not love their state, their land, do not give strength and character and position to the state; and it seems to me that while these horticultural and agricultural associations are engaged in these labors, they are really working for the state, and that if our legislators property understood this question they would cheerfully aid these societies in the work which they have undertaken.

Now we know that Mr. B. who farmed as he did, gained no attachment to the spot on which he lived. We know if we go on to a place and begin to set out trees and plant shrubbery and orchards and flowers, that that is the very first principle of becoming attached to the positions which we occupy, and it ties us to the spot where we live. A man will not willingly leave a place which he has ornamented by setting out trees and flowers. He will remember as he gets old, that he went into the woods here and there and dug those trees. I remember a fine tree in Sauk county, fifty feet high, that I once carried in my hand. I never can see that tree with indifference. The more such ties we have, the more we love our homes, the better citizens we become, and the stronger the state becomes. So that I think we cannot over-estimate the importance of the labors we are engaged in. They are important to us individually, and are important to the state; and I wish our legislators might attend our conventions and see the labor in which we are engaged. If they would, I do not believe the societies would have to come before them so timidly, asking for a limited appropriation which is necessary to advance its great interests.

Mr. Smith — Perhaps I did not make myself thoroughly understood. I do not wish to discourage emigration, for I am a carpet-bagger myself.

Mr. Gill — I have derived great benefit from the papers which have been read and published, and I would like to have every one else gain the same benefit; but the great trouble is to get the men that really need instruction in this matter to come here.

Mr. Field — We must carry it to them if they don't come here.

Mr. Gill — This is the third time that I have attended these meetings, and if I had derived no other benefit from them than from the papers brought in alone by Mr. Smith, I would have been well repaid for all the time and expense.

Since the first visit I made here I have tried more or less to induce my neighbors to come with me. I have not tried less than half a dozen this last week, to induce them to come here. I told them I knew they would feel well repaid for their time. They did not see how they could get away, and all had one excuse or another. The great trouble is, you cannot get the right men here. You cannot reach those that really need talking to on this subject. It requires good homes to make good citizens. Our friend Mr. Wood appears to be pitying New England because there are so many good men coming away from there. I do not pity them a bit. I think there are good men left there.

Mr. Field — Because they cannot get away.

Mr. Gill — I do not think they are disposed to get away. I think they are on the old homestead. I do not envy the boy they were speaking about last night — the bright boy who goes into the city to make money. I do not pity the dull fellow who stays at home, and enjoys the old homestead, and takes care of it and keeps it as well as his father did, and may be a little better. I believe there are good men living in New England to day. I believe there are as good men living on the farms in Wisconsin as ever came into the state; and probably as well adapted to develop and improve it. I had some natural disposition in that direction. I made some efforts in that direction before I came here, or probably I would not have come here. I know it has induced me to develop my garden to a greater extent than I should have done if I had not come here. I know my family has derived enjoyment from vegetables and fruit that they never would have had if I had not attended these meetings. I had a good location for grape vines. My boys had grown up, and I thought I would like to play old man and tinker around grape vines a little. I enquired where I could get a work that would give me some little instruction. I came here and

heard the matter discussed, and I knew all about it before I went home. I planted twenty-eight vines that spring, and had an abundance of fruit for my own family, and gave away considerable to my neighbors. One of my neighbors and his wife were at my house about the time the grapes were ripe one summer, and I invited them to take some to eat. He told me a while ago, that his wife said if he didn't plant grape vines she wouldn't stay on the farm. I have a very good strawberry bed, three hundred currant bushes, three hundred raspberry vines, and so on. I have nothing but what every one may have if he makes an attempt. One man said, "I wish I knew how to garden as well as you." I said, "You can know all about it; go to work; you can garden as well as I can." It is an exception to find anything like a good garden around a farm. If you find one anywhere it is in the village; and a villager is really at a disadvantage. The farmer has the advantage. He has manure and everything at hand, and can grow the largest kind of vegetables if he gives it his attention. I know by experience his family will appreciate them when he gets them.

Mr. Morton — Mr. President, I conceive this to be a most excellent paper. I have at my time of life received great benefit from hearing this paper. If you can get the legislators to hear it, it would be a good thing. It is a beautifully written and instructive paper. It has not, as Mr. Kellogg alluded to last night, three sides to it. I believe there is only one side to it. If these men from New England emigrate here to Wisconsin and Illinois and Iowa, you cannot blame them. When their ancestors settled in New England this country was scarcely known. But we have got such a place as Wisconsin now to make a home in. Some come and get these large farms that have been spoken of. There are not many of them.

One gentleman said that it took a good farm and a pleasant home to make good citizens. I reverse that. I think it wants good citizens to make pleasant farms and homes. I indorse the paper, from beginning to end, and I am very glad that I was able to hear it.

Mr. Kellogg — I do not like to have the doctor take my name in

vain. I realize the fact the more I hear it, that Farmer B. is not here. My remarks last night perhaps would apply more to farmers who are not here. I do not take anything back that I said last night. It is the drudgery of farm life that drives the boys from home. I did not hear all of the paper, but I heard enough to convince me of the good influence of these meetings. The little society meetings we have at home, the local horticultural and agricultural societies and the clubs in the farmers' neighborhoods, are doing a great deal of good. It is not a great many years ago that the impulse from one of these gatherings led me to order six thousand elms. They came in a raisin box. Now those elms are beautifying many homes, not only in my city, but in different portions of the state. And the impulses that will go from these gatherings, and from the reading of this paper, will stimulate farmers who haven't these things, to get strawberry vines, raspberry bushes, and other fruits and surroundings; and I would have liked to have had it dwell a little more upon evergreen protections against the winter blasts. It feels good to get behind an evergreen hedge thirty feet high when the wind is blowing twenty knots an hour and the thermometer is twenty degrees below zero. They only costs five cents apiece, and only want the same attention that a hill of corn does. It only takes a few years to get them up ten feet high.

I will give one instance of what may be done. I had ninety-nine strawberry plants of the Crescent Seedling variety, and from those plants, at the third picking, I had a hundred quarts of the finest strawberries. Every farmer can do the same, if he takes care of them one year.

Mr. Field — I believe nearly all the speakers have taken the side of Mr. Smith. I was half disposed to. There are one or two thoughts that arise from his paper that I do not exactly agree with.

He says the cultivators of the soil are to rule this country. I have thought that it was a thing they ought to do; but I have about given up all hope that they ever will. Now, sir, what do we see around us every day? We see men become educated, and fitted to cultivate the soil in the most scientific and best man-

ner, and then they leave the profession of farming, as we said here last night, and go into the other professions and avocations of life when they are just fitted to elevate agriculture and make it what it should be — the leading pursuit of life — the best pursuit — the pursuit which should be looked up to by all other branches of business and professions. They leave it and go into others, and leave the least educated class to carry on the farm. And, sir, I think the remark is true, that a gentleman who lived in New Hampshire, my old home, made to me recently when talking about politics and how they managed things there, where they send one representative from every town regardless of the size. I said, "Why do you continue this old law? It seems to me it is very unjust and very unequal representation. Here you have a city of ten, fifteen, or twenty thousand inhabitants, and you send one representative; and in a little rural town of perhaps only a few hundred inhabitants, you send a representative." "Well," he says, "I will tell you how it is. We equalize it in this way. From the city we send a sharp, shrewd business man who can control ten, fifteen or twenty of your country chaps."

A Voice — That's what's the matter.

Mr. Field — It is largely true. There is no doubt about it; and until we select men who are cultivators of the soil, men who are competent to represent the great agricultural industries of this country, and send them to represent us in the great representative halls, we need not talk about agriculture ruling this country. They are virtually slaves to the other interests of this world. We talk about the farmer being independent, and about his having a ballot, and therefore going to rule this country. What does the ballot amount to in the hands of men thirty or forty of whom can be controlled, and are controlled, by one man? It virtually amounts to nothing. It is true that we have this power if we choose to exercise it. It is a potent and wonderful power, and a power that every man ought to feel glad that he has a right to exercise. But, sir, he ought to think for himself, and then cast his vote independently, and effectively. And how can a man be independent? Now, sir, my experience in life has been this: that no man can be independent who is overwhelm-

ingly in debt. A man cannot stand up in the pulpit and preach a good sermon to-day if he feels that he is under the money power of this country. I have felt it myself. Thank God, I am out from under it, and I hope to stay out as long as I live. The only way to keep out is to live within our means. The only man in this world who is absolutely independent, is the man who lives within his means. If he has an income of five, ten or twenty thousand dollars, I am willing to see him spend it in generous living and in bringing around him everything which he can bring around him to make his family and himself happy and prosperous and good.

Let every man keep from under the power of high rates of interest. I have seen in the state of Iowa, where I have a large farm, and where there is as beautiful land as lies under the sun, I have seen hundreds of those farms plastered this last season with mortgages at eight, ten and twelve per cent. interest, and four or five per cent. added for the party who gets them the money. Men are sending in money from Illinois, and from New York and Boston, and they are plastering these farms with mortgages at that rate of interest, and the time will soon come when these farms will all be owned by a single individual, the same as those large farms spoken of this morning are owned. They never can come out from under that load while they live. Some may, but the large proportion of them must go under.

Mr. Warner — We hope some of the men will imitate your example. If they leave their farms and go into politics and other kinds of business, when old age and good sense returns they will return to their first love, and go to farming.

Mr. Morton — I feel interested this morning. I will admit that congress is composed, in a great measure, of lawyers. But you must remember that we are a new people. We have only been a little more than a hundred years in civilization, and your farmers that came here were not educated. They did not desire, if they had a chance, to go to congress. They wanted to make homes for their families, and they have stuck to the land and stuck to the farm, and have not desired to go to congress.

Mr. Field — Is it not true that in the early history of this

country they sent a great many more agricultural and industrial men to congress than they do to-day?

Mr. Morton — You had nobody else to send. [Laughter.]

Mr. Field — I wish we had no other class now.

Mr. Morton — Nobody else wanted to go. They wanted to make homes for their families. Now you are in a different position from this time henceforth. You have got educated farmers, and they begin to feel that some of them want to go to congress, and it is as sure as you are a live man, and I am a live man, the lawyers will be thrust out and congress will be composed chiefly of farmers within a hundred years. I shall not live to see it, and don't want to. Farmers will rule this country, and they will make a national rate of interest of not more than five per cent. High interest has been the ruin of thousands of men in the west, and will be of thousands more. Farmers will rule this country. These pettifoggers have no business here. They are only interlopers. We suffer it because we cannot help it. The time will come when it will be helped. You will get your interest put down by the national congress, and kept there.

Mr. Babbitt — The trouble is, that when we owe large debts we think our farms are ours. They are ours if we have the money to pay right back; but don't borrow money to invest in farms, calculating to get back the money in season to pay what you borrow.

Mr. R. C. Spencer — I have for some years had the honor of being a member of this State Agricultural Society, but have rarely had an opportunity to attend a meeting. I am not in the practice of farming. I am a teacher, and therefore interested in whatever relates to the general welfare of the community. I have always been deeply interested in the proceedings of these meetings whenever I have had an opportunity of attending them, and I have highly valued the reports. I know what Mr. Smith has done from the reports of this society, and frequently call the attention of young men to what has been accomplished by him and by other men in similar directions, and have endeavored to impress them with the lessons of their experience and achievements.

I was glad to see in the report of your proceedings last even-

ing, the address of the president, the efforts which he made to impress the minds of farmers with the importance of giving proper attention to their sons. In France they have 20,000 primary schools, attached to which are gardens in which the children attending those schools are trained in agriculture. And to this fact is now due the prosperous condition of that country. Now it is much better, in my judgment, for our farmers to remain at home and attend to these matters, than to be spending their time in congress, or anywhere else. Build up your schools with your agriculture. Now I do not, allow me to say, sympathize with these efforts which are being made to create class prejudices. I believe, in the language of President Lincoln, that "This is a government of the people, by the people, for the people;" and it is not a government of farmers, and by farmers, for farmers, but it is a government of all the people for all humanity. This includes not only agriculture but manufactures and mining and commerce, and the arts — everything that goes to build up and honor a people. We must be one people, with a free interchange not only of interests and sentiments upon all subjects relating to man's welfare, but the free and generous exchange of our products and the fruits of our soil.

Furthermore on one other point, it seems to me that a wrong impression was being made in regard to the rate of interest. This seems to me to be a matter which is governed by an established law of nature. If you want cheap interest you must have an abundance of capital, and the only way to produce an abundance of capital is by labor, by saving, by thrift, by care, by prudence, by forecast; and he who undertakes to regulate the rate of interest in opposition to the law of supply and demand will be disappointed, waste his time and his energies. This is a law which is immutable. It is in the nature of things. Let farmers not only study farming, but study the general principles of political economy and social science. When they have done this they will be fit to take places in congress and elsewhere which are held by men of other professions.

I wish to indorse a recommendation made by the president, as reported in the paper this morning, that you should publish an

increased number of the copies of your transactions and circulate them freely. They should go into every school district in this state; and in every school district should be a little branch of this society; and you should have a spot of ground amply spacious, planted with trees, and have horticulture taught there. That should be a branch of instruction in all our normal schools. You ought to double the number of normal schools, and have all the teachers trained in these things.

Mr. Field — I wish to ask unanimous consent to read a slip from a paper, as the gentleman says that he is opposed to class legislation, and speeches of that kind, indicating that we are not one people, that we are not a country of the people and for the people and by the people. I desire to read this in that connection, as it would seem from this and from other things that I have seen, that this is a country of lawyers, for lawyers and managed by lawyers:

"THE MEN WHO RULE OVER US. — There is no mistake about the men who form the institutions of this glorious nation of farmers. It is the lawyers who rule over us now, as it always has been. A late Washington city paper gives some statistics on this subject that would be interesting if they were not also mournful and degrading.

"The U. S. Senate consists of 76 members, 57 of whom are practicing lawyers. Of the 293 members of the House of Representatives, 219 are lawyers in active practice. The President and Vice President of the United States are lawyers. It is the same in all the departments. What do these men, as a class, know about taxation, banking and finance generally, or the great and noble objects at which the nation should aim, to be just and fair to all classes of citizens, and render them all alike happy, contented and prosperous? Let us gauge our lawyer rulers by those left at home, who have not yet got office, but who still hope to do so, some day. Is there anything about them that should put them so far ahead of their fellow men? If there is, as a rule it is so carefully concealed as not to be perceptible to the naked eye.

"Of the few members left in congress outside of the lawyers, in the senate, there is one physician, eight merchants, one editor,

two planters, two farmers, one banker, and three mine speculators. In the house there are twenty-five merchants, five bankers, three capitalists, two inventors, five manufacturers, two teachers, six doctors, one architect, four editors, two ministers, one stone cutter, one insurance agent, two millers, three owners of freight lines, and twelve farmers! Fourteen farmers in 359 congressmen!"

Mr. Hoxie — The point I want to express is this: That this is the very place where we want to bring out thoughts, so that the farmers will be intelligent enough to legislate if they have the opportunity.

Now, I think we may safely say, that there is intelligence enough in this assembly to make legislators just as good as we have in the other room. We must awaken the spark that is latent, and we shall be better prepared to make these laws. We shall not be browbeaten by a lawyer because he can put the words together a little faster than we can.

There is a gentleman in this room who has attended these meetings for the last eight or ten years. I remarked to him, that as I had rode by his farm for the last seven or eight years, I noticed a marked improvement over his neighbors. He said, "Yes, since I have attended these conventions, I have nearly doubled the product of my farm." Now, if a man can double the product of his farm, if he is in debt, that gets him out of debt. He is lifted above all these petty annoyances that debt brings, and is better prepared to take action and become an important part of such a meeting as this. And if he cannot induce his neighbors to come up, then I say let what we have published here go broadcast into every school district, and let them read it at home, and by and by they will come here and they will take thought and take heart, and we will be better prepared in the future to rule and govern this country as we ought to.

ABUSE OF NATURAL AND MISTAKES OF ARTIFICIAL LAND DRAINAGE, AND THE EFFECT ON THE GROWTH OF VEGETATION, ILLUSTRATED BY SPECIMENS.

BY W. J. BURDICK, JEFFERSON COUNTY.

The value of good drainage cannot be over-estimated, in promoting the health, wealth, happiness and prosperity of mankind. In the physical organization of the earth, those measures were not overlooked by its divine author, in external and internal forms, whereby man can improve to suit his peculiar views and interests. We will briefly review the natural external forms, as they were made by their creator. The main base lines for natural drainage are rivers and their tributaries, whilst the oceans, lakes and ponds are the recipients of their contents. What a beautiful illustration, when we review the formation and the location of the Mississippi river, discharging its contents into the Gulf of Mexico. No wonder it is called the Father of Waters, as it is the main base line for natural drainage to the great Mississippi basin, receiving the waters of the many large tributaries, those formed by smaller ones, until their formation are reduced to the small rivulet running from the small spring, located on some far distant hillside.

As we have claimed the Mississippi river as the natural base line for the drainage to this vast extent of territory, we will briefly note the description as given by the most eminent writers. "The Mississippi river rises from the little lake Itasca, in Minnesota, at an elevation of 1,575 feet; has a southerly course of 2,800 miles in length, and empties into the Gulf of Mexico. Its middle course from the Falls of St. Anthony to the mouth of the Red river is remarkable for the number of curves and serpentines. It drains a territory of 1,237,311 square miles, the wide plain between the Rocky mountains and the Appalachians. The annual discharge of this river is about nineteen and a half trillions of cubic feet of water into the sea. About one-fourth of this amount is furnished by rains to its territory for drainage. The descent per mile of the

Mississippi is from the city of Memphis to the mouth 4.8 inches for the low water slope, but 5.2 inches for the high water slope." Hence we deduce from the above statement the following facts, to wit: The amount of water that rivers receive as the natural base line for drainage depends on, 1st. The extent of the territory they drain. 2d. The amount of rain and moisture prevalent in the region. 3d. The physical features of the country through which they flow. A well wooded country impeding, an open one favoring evaporation; and 4th. The climate, heat and dry atmosphere increasing the loss of water by evaporation.

The natural velocity of the current of a river will be in proportion to its depth and the physical features of the section of country through which it flows. Thus a velocity of from two to four feet in the second is moderate; from four to ten great. The Rhine, at Basle, flows 7.5 feet in a second when highest, but only 3.4 when lowest.

Hence we note the importance of well securing those natural avenues in the advancement of land drainage to the general interest of agriculture.

We will now notice the river system for drainage in the state, as we are interested with its interest in securing a more thorough system of land drainage. On looking over the state map, we observe the location of five principal rivers which flow into the Mississippi almost at equal distances from each other; and those on the eastern part of the state flow into Green Bay or Lake Michigan, only a few excepted.

In most rivers we may distinguish between three different sections of their courses — the upper, middle, and lower course. The upper course is that portion which flows in a mountainous or hilly country. It is characterized by a steep descent, great velocity and nearly vertical banks. The water plunges, rather than flows, and, falling over precipices and rocks, forms cataracts and rapids. Sharp turns or angles, and straight lines of considerable length, succeed each other in their courses.

The middle course begins where the river emerges from the mountains. The descent has but a slight grade, and the river flows in a well-defined bed, with alluvial flats along the shores,

subject to overflow by the higher freshets, called flood grounds or bottoms. The bed is formed of more sand-like materials, which are more easily washed away by the flowing waters, and the decreased velocity renders the river more liable to be turned, and change its direction. These conditions produce rounded off curves, called serpentines, very different from the sharp, angular bends of the upper course. The rocks of these curves are easily washed away, and thus islands, nearly round in shape, are formed. The lower course begins where the surface of the river is scarcely higher than the ocean. The fall of this water is hardly perceptible, but the pressure on the water above causes the onward flow to the ocean. The low, alluvial banks rise but little above the water.

The above divisions can with propriety be applied to very many of the main rivers, as the base line for natural drainage for this state, which we shall review in the first division of this topic.

Internal or subterranean drainage will be in proportion to the porosity of the subsoil and to the depth of rocks with which the water will come in contact in its descent below the surface of the soil, which we shall review in the second division of this paper.

The vast number of plant-forms which compose the vegetable covering of the earth, are distributed in accordance with certain laws. Every plant species was created in a certain locality and form; thus it has spread or migrated over a more or less extent of area or region. As the different natural conditions of the climate and soil influence the growth of plants, each region has its own distinct flora. Also, every plant requires certain conditions of soil and climate in order to live and thrive. The soil on which it stands must contain the elements which enter into its composition, and the climate must be of a certain temperature and degree of moisture. The amount of moisture required by different plants varies greatly. Aquatic plants, as our pond lily and the seaweed, live only in water; others live in swamps, and still others live in dry, sandy soil.

The entire earth, a few limited localities only excepted, is covered with plants. But as every region presents different conditions of heat, moisture, light and soil, we find in each a dis-

tinctive and characteristic flora, which is demonstrated by the distribution of plant forms, even over the surface of this state; for we do not find the stately growing pines of the northern section of this state growing among the dwarfed specimens of the burr oak of the southern section. Also true, we do not find the beautiful tiny flowering plants of the southern prairies of this state growing in the dense forests of the northern section. For a more comprehensive illustration of our position, we would call your attention to the classification of the land of this state, to wit: It is reported by competent authority that this state contains thirty-four million five hundred and eleven thousand three hundred and sixty (34,511,360) acres, which is divided in the following ratio: prairie, 16 per cent.; timber, 50 per cent.; openings, 19 per cent.; marsh, 15 per cent. The reduction would give the following result, to wit: prairie, five million five hundred and twenty-one thousand eight hundred and seventeen (5,521,817) acres; timber, seventeen million two hundred and fifty-five thousand six hundred and eighty (17,255,680); openings, six million five hundred and fifty-five thousand one hundred and fifty-eight (6,555,158) acres; marsh, five million one hundred and seventy-six thousand seven hundred and four (5,176,704) acres.

Each division being covered with these classes of vegetation, naturally adapted to the conditions of the various soils and climates therein located, we do not find the genus of plants whose growth requires a rich, moderately dry soil, growing among those whose vitality and existence depend on the extreme wetness of the soil. Time and space will not allow me to review all of the different formations of the various plant forms in their physical construction, but I will notice those which are the first to become apparent, as required in the discussion of this topic, to wit: The roots of the plant forms. Roots grow chiefly by lengthening their substance, and somewhat by thickening it. Botanists recognize several kinds of roots, as top, crown, bulbous, tuberous and fibrous. The latter only are interesting to us, because they are the means of growth. All other roots derive their nourishment from these. They acquire size and form not from any activity of their own. They are mere receptacles of what the fibers

may collect. The absorbing surface of the fibers is not at their very end or tips, but just above.

The absorbing surfaces are cellular, small and tender, and so need a cap to protect them as they penetrate the soil. Root fibers, like animals, always collect food, and thrive when they can obtain a full supply of nourishment. At first they live and grow upon food provided for them, but soon they exercise the right and power of helping themselves with the means of growth that may be within their reach. Most plants send out fibers in all directions, and so increase and multiply, enlarge and ramify and extend to those spots where are found the readiest means of growth. If particles of food are sparse, fibers travel far and wide to obtain the needed amount and proper kind of food. And so we find that plants growing in a sandy soil have fibers long and slender, while those that grow in rich soil, or on masses of manure, have numerous short and stout fibers. The exact structure of fibers depends upon the conditions in which they grow. Place a plant that has grown in the soil until a few leaves have formed, into a vessel of water, and observe that usually the fibers already formed will perish, and new fibers will soon issue from the crown. The young, tender and active fibers are the parts that suffer most in changes of this sort.

Generally, we have noticed that even if plants are removed from soil to soil, the fibers perish and new fibers form before the plant begins to grow, so that the late days of autumn, when the fibers have ceased to grow or the early days of spring before new fibers have begun to form, are the proper times for removing plants. We have found the autumnal days to be the best. New fibers start much earlier in the spring than many may suppose. A plant removed with the greatest care ordinarily leaves one-half or more of its active fibers in the ground. Place half a dozen grains of wheat over cotton batting, resting on the surface of a glass tumbler of tepid water, and after some days notice the number of fibers that start to grow. In another tumbler place another half dozen of wheat; enrich water with a weak solution of some fertilizer, as a few drops of ammonia, or a few teaspoonfuls from the drainage of the cow yard, and after the same number of days has

passed away, notice the condition and number of the root-fibers. Often we have tested the vitality of seed of the various genii of the cultivated grasses by the above described method, which has always given the most satisfactory results in forming the basis for the amount of seed necessary to be sown per acre to secure the desired result.

The absorbing surface of fibers are formed of cells or capillary tubes too minute to be appreciated without microscopic aid. Place the newest and most delicate fiber under the revealer of minute things; notice that the absorbing portion composed of cells has no openings that are visible, and still they freely pass water and mineral atoms on their way to the leaves of the plant. The fibers, while young and delicate in the growing seasons of the year, are constantly engaged in drinking nourishment from the soil. Changes in the condition of the cells are constantly occurring. Old fibers have done their duty, and new ones are coming into active life. The cuticle through which nutriment had passed has become coated and impervious, and so their duty falls on fresh, newly-born fibers and their cells. The rapidity of their extension is wonderful. Their power, when in contact with the soil, of absorbing food, is rarely comprehended. The length of the roots or fibers does not determine the amount of nourishment they may collect, but the amount of surface does.

Several small, short fibers may have the same surface and the same number of cells that long ones have. Their length depends upon the conditions of the soil in which they grow; if they grow in a soil which contains an excess of moisture, they will be small and short; if the soil is rich and dry, they will be very numerous and long. To demonstrate this position, note the following experiment: Place a small amount of some fertilizer in the bottom of a glass jar; fill it with ordinary soil. Plant, an inch below the surface, a few seeds of wheat. In due time the seeds will germinate and extend thin and poorly nourished fibers until they reach the fertilizer, when they multiply, and become strong and stout, so that fibers appear to have the power of collecting food. The more they collect, the more they grow and multiply. The quantity of fibers is enormous in all plants growing in a well

drained soil. We would very respectfully call your attention to the specimens of the larger growing classes of our cultivated grasses, to wit: meadow fescue, orchard Italian rye, timothy, even the poa not excepted. The distance through which fibers run is often very great.

One observer has found that on making an excavation across a field of rye, beans and peas, and directing a stream of water against the vertical walls of the bank of the soil until it was washed away, and the roots and fibers were laid bare, the appearance was that of a mat of white fibers to the depth of four feet from the surface of the ground. Also, he found the fibers of winter wheat seven feet deep in a porous subsoil forty-seven days after sowing.

Another observer has studied the rooting of oats and barley. He raised those grains in large glass pots, and carefully washed away the soil from their roots, and found growing from their base twenty to thirty roots, and from these branched off a large number of side roots, until they filled every pore of the soil.

A third observer found that all the roots of a vigorous barley plant were nearly one hundred and twenty-eight (128), and those of an oat plant nearly one hundred and fifty (150) feet. In these and similar cases, the length of roots, and so the amount of surface in the root fibers, must depend upon the porosity, richness and depth of the soil. The fibers cannot live long after the leaves fall; except at a low temperature they cannot grow. They have the wonderful power of selecting from the soil certain mineral elements. Some may select lime and others silica. But whatever the mineral may be, it must be dissolved before it can be drank up by the fibers. One moment — I may forget this point. Here is one of the greatest mistakes of draining a piece of land with surface ditches. We need that rain water to dissolve those elements of the soil of a mineral character for the food of the plant.

This force urging water up the plant, is usually the cause of moisture exuding in drops upon the leaves. We often see it upon newly growing maize or other cereals. This fact is often seen in leaves undergoing rapid growth. The bleeding of wounded

veins severed in the spring, and the free flow of sap from the sugar maple, illustrate the drinking by the roots of water from the soil. The bleeding of a severed stump occurs in all plants when the roots are active, and the soil can supply them with water, and tissues above the absorbent parts are full of sap. The power of absorption is modified by temperature. The rapidity of absorption depends, among other causes, upon variations of temperature, upon the dryness or moisture of the soil and air.

Plant food abiding in the soil enters the plant in a state of solution, and is so taken up with the water in which it is dissolved. How do root fibers drink? The term "endosmose" means flowing in, and the term "exosmose" means flowing out. If a dense fluid be on one side of a membrane, and a thin fluid on the other, the two fluids will commingle. Separate pure water and common salt by a membrane upon whose substance these fluids could exert no action and could not dissolve, and they would pass through the membrane as if no membrane existed. The molecules of water would penetrate the membrane on one side, and molecules of salt would penetrate on the other, until the fluid on both sides of the membrane would be alike. The conditions necessary for this power of capillary attraction are two fluids of different densities, separated by a porous partition.

In roots the fluid of the inner parts is denser than the water around it of the outer part. It is rendered denser by the substance secreted in the cells. And so absorption at the fibers is an osmotic action exercised by the membrane that covers the cells of the fibers. Between the cells and the soil are loose cell tissues encircled by a compacter epidermis.

Osmose or impulsion occurs in cuticle tissues with so much force as to distend the cell tissues and to force the water of the cells to filter through their walls. The absorption of fluids may continue as long as the difference of density exists. Grow a plant by placing its roots in water, and it soon may be observed that the water contains some peculiar substance that has been derived from the cells of the plant in which it grew.

We have been very particular in the review of the formation and the functions they perform of plant roots, for we shall assume

the position that they are the first agency, to demonstrate the effect in changing the degree of moisture of the soil on the plant growing thereon. Therefore we will now review the "Abuse of Natural Drainage."

In the formation of rivers we notice the construction of their tributaries as being a component factor for the base line for natural drainage in the section of country through which they flow. Hence those tributaries will be closely in sympathy with the varied conditions of the main base line, accelerating or retarding the velocity of the volume of water which they convey.

The effect on the growth of vegetation, by artificial obstructions located in the main base lines of natural drainage, is governed by the following propositions, viz.: 1st. The velocity of the volume of water that is passing through their channels; 2d, the location, the period of time it has been maintained, also the structure of the obstruction.

Place an artificial obstruction in the upper course of a river whose banks are well defined, with an ordinary velocity of the current, and note the effect. We will find the water set back from the obstruction in proportion to its length and to the grade of the river, causing a small amount of injury (if any) to the growth of vegetation. But place an "artificial obstruction" in the middle course of a river, where the banks are only a few feet above the surface of an ordinary stage of water moving through the channel in a sluggish manner, and note the result. We will find the water set back, in very many instances, a long distance, if the obstruction is of a very formidable character, which is the present condition of many sections of the rivers in the northwest. We do not fully comprehend the magnitude of the extent of the very serious injury in the growth of many classes of vegetation when the natural avenues for drainage are obstructed in this diversion of a river, even though it may be small in size.

One of the most injurious causes to the growth, also destruction, of many classes of vegetation, is an artificial obstruction, whose walls are like framed reservoirs located in the middle division of a river, with no avenue for the water to escape only to flow over the top of the obstruction, regardless of its height, or at the own-

er's will, especially if it has been maintained a long period of time, because it will change or destroy many distinct flora, which our specimen will illustrate. To qualify this position, we will briefly follow the history of this class of obstructions in the base line for natural drainage, located in the middle course of a river, and note the effect on the growth of vegetation. The natural conditions of the middle course of a river are very peculiar in their formation, viz.: "The descent has but a slight grade, flowing in well defined beds, with alluvial flats along the shores," etc. We will now minutely examine the condition of the country contiguous to this diversion of the river. The width of the alluvial flats or bottom land will be in proportion to the descent or grade of the river. The varieties of the various classes of vegetation growing upon these lands are very numerous, from the tiny flowering plants to the towering young oaks in a deep, rich soil, usually resting upon a substratum of clay.

The plant forms of vegetation are varied in their distribution over the surface of these alluvial lands, for we find the native grasses rich and nutritious in quality, great in quantity, ready for the use of man, growing in close proximity to the dense, large forest trees, often separated only by a small stream of water. The lands surrounding these alluvial flats are of a higher elevation, provided with many water courses for drainage, running to the river or creek or small brooks as the natural outlet; or the waterfall causing a very rapid rise of the volume of water, even oft-times an overflow from its natural confines, leaving its poisonous effect upon the growth of vegetation. Hence the following summary report on the dangerous condition of the natural soil, also the effect on the various classes of vegetation, is directly chargeable against the presumable construction of the artificial obstruction being placed in one of the larger natural water courses for natural land drainage. It will be the direct cause of a subvert use of nature's laws. It will cause the destruction of very many valuable varieties of our forest trees. It will close all of the natural water drains, also the artificial ones, leaving the soil filled with an excess of wetness. It will destroy very many valuable varieties of plant forms which are very beneficial for the use of man. It

will be the cause of a steady increase of the wetness, and then a sudden overflow or a separation of the soil from the clay subsoil, leaving the like appearance of a new formed lake as a monument of the destruction of the most fertile valleys for the production of the cereal crop.

It will change the location for the growing of those plant forms that require excessive moisture of the soil to secure their matured growth, for we have seen the growing of wild rice on those lands that have been successfully cultivated, produce an excellent cereal crop. It will cause erosion on the banks of a small river until it has the appearance of being one of a larger class. It will cause very wet land at the base of those which are of a higher elevation. It will change the beautiful formed low land planes, covered with long, flowing plants, to the like appearance of a wet marsh, even covered with the wild, coarse slough grasses, which our collection of specimens will illustrate.

In discussing the second division of this subject, we would not assume the place of a critic or the appearance of an egotist, nor the character of a pessimist. However, we propose to be governed by the general rule to review what has been suggested by theory, demonstrated by practice and approved by nature. Theory and practice should always go hand in hand. Theory without practice is useless, and often absurd, because purely speculative, and many theories in themselves beautiful, when reduced to practice, prove wholly impracticable; but practice without theory is devoid of progression and revolves in the same beaten track forever. Thus the two should go hand in hand. The quantity and quality of the plant spears of the grasses will depend upon the condition of the soil. Hence we find the first principle in preparing the soil, which is good drainage. To know when, where and how to successfully drain lands at the least expense and secure the best result, is a question for very close study and careful examination in the demonstration of theories suitable for the various conditions of the undrained land of the northwest; because the natural formation of the soils and the subsoils are so diversified that they require different plans for drainage. Therefore a practicable theory, suitable for the drainage of certain formations of

soils, would be wholly impracticable for the drainage of other varieties of soil. A soil resting upon a porous formation of a subsoil, does not retain the excess of moisture like those of a more impervious formed character, which every practical man can demonstrate in observing the growth of the various species of vegetation.

In the application of different theories to land drainage, a noticeable fact is very pertinent; that the exponent of every system is honest in his convictions that he is in the right course to pursue to secure the greatest profit for time and money invested in the enterprise, and it would touch his most sensitive feeling to be accused of making a very serious mistake in applying his theory to his work in the improvement of his farm land for agricultural use. Therefore we do not appear as exponent or agent, forcing peculiarly constructed machines adapted for the use of underground drainage, for we sincerely believe that a practical and experienced man is the most economical machine to employ in the enterprise of agricultural land drainage. When this machine is properly equipped, with all of the paraphernalia requisite, he can construct any form or design of drains without the slightest inconvenience to his employer, and also secure the most satisfactory results for the time and money invested. To sustain this position, we will introduce our collection of specimens, carefully selected from undrained, partially natural and thoroughly drained soils. They represent the effect of the application of several theories and systems of land drainage when applied to the growth of vegetation in relation to the quality and quantity of these productions. Hence we are taught, by the varied sizes of the same species of plant form, this axiom: That no one system or theory can be, with success, applied to all of the varied conditions of the different forms and classes of soils and subsoils. What man would apply the Mole system of under drainage to a light, porous soil, unless he is riding the Mole form hobby? Who would apply the surface system of drains to reduce the excessive wetness of the soil resting upon the most imperviously formed clay subsoil, for the purpose of improving the quality and the quantity of the various classes of vegetation

thereon? Who would think of thoroughly draining his lands by the application of any of the various drainage systems, where an outlet for the drains could not be secured for the discharge of the volume of water flowing therefrom? Who would advocate and apply the theory that shallow cut drains are sufficient to reduce the moisture and raise the temperature of soils, in all of these varied forms.

Notwithstanding the absurdity of the foregoing queries, nevertheless we must confess that they are often applied in the improvement of agricultural land by the various systems of artificial drainage, which are verified by the conditions of the land in various sections of this state, which we have personally observed whilst we have been engaged in our vocation. Reducing the moisture and raising the temperature of the soils are the most desirable results to be obtained in the application of artificial land drainage systems. Therefore we will review our observations on the examinations of the various systems, structures and form of artificial drains whilst we have been engaged in the superintendence of the work of the improvement of grass lands and the cultivation of varieties of the valuable grasses but little known, for their value in forming combinations for seeding lands for the production of summer and winter feed for the farmers' use for his various herds of stock. Also in locating and constructing drains. It has given us the opportunity to closely observe the formation of the various subsoil, and to note the action of the water as it passes through the soil, and the effect on the growth of vegetation.

The most important work in agricultural land drainage is to secure well an outfall for the main base line for successful drainage. If this should be a small, meandering stream, it should be made straight, with as few number of angles as conditions of the land will allow, especially if its course is through a moderately level section of the farm. Not only should it be made straight, but deepened to the depth of not less than four feet, contracted width at the bottom, sloping bank at an angle of 18° to 12° depth, which leaves a firm bank, and not the annoyance of bars forming in the bottom during a low stage of water which are formed in

the wide bottom constructed ditches. The distance between the cross sectional lines will depend upon the conditions of the porosity of the subsoil, for if the subsoil is composed of a stiff, tenacious class of clay, which is almost as impervious to water as an iron dish, it will then require drains located at a nearer distance than those running through a more porous formation.

The different classes of materials used in under draining will depend upon the conditions and location of the soils to be drained, for we have seen the following materials used, to wit, tile, poles, moles, stone and gravel drains, built on a farm located near Lake Geneva, in this state. In my travels among farmers, and especially among those who believe in drains, and their attendant improvement, I am surprised that many do not properly understand the manner, or rather the position, in which the water enters the drain. It is, of course, understood that a drain only removes the surplus water, and hence a common barrel filled with earth may be taken as the representative of the subsoil. If into this barrel we pour water until the earth becomes saturated, the surplus will run over the top, and our barrel represents a soil too wet for successful crossing.

If, previous to putting in the water, we make holes in the side of the barrel, at different distances from the bottom, they will represent so many drains laid at different depths. If we now pour in the water we will find that it will first sink to the bottom of the barrel, until all the soil is saturated, and then the surplus will rise and run out at the lowest opening. If this affords vent, as fast as poured in at the top it will rise no higher; but if the supply exceeds the ability of the opening, the level will rise until it does find escape, even though it be over the top.

So it is with the open soil. All soils have a point at which the water permanently stands. In some places on high lands this point is far below the surface, and in low lands too near the surface for successful farming. When rain falls it sinks into the soil until it meets this water-level, and rises in exact proportion to the amount of rain. If deeper openings are not found, the low lands are overflowed, but if properly constructed drains are made the surplus water will escape before appearing sufficiently near

the surface to interfere with the growing crops. Even where the drains are too small to immediately give vent to all the surface water no harm ensues, because the action of the drains is kept up to its full extent after the rain ceases to fall, and until the level is reduced to that of the bottom of the drain. We may then assume that water enters the drain from the bottom, and that on soft ground drains are often closed by the soft mud or quicksand being forced up from below, and very seldom, if ever, from material from above. Hence on this kind of bottom it is the safest to use narrow boards under the tile. Theoretically, this water lever should be at the bottom of the tile all over the drained land, but practically it is found to rise between the drains to a height which varies with the nature of the soil and the distance of the drains apart. This is chargeable to the capillary action of the soil raising the water like a sponge.

Hence, the degree of the dryness and temperature of the soil will be in proportion to the depth of the cross-sectional drains, also the porosity of the soil and depth from the surface to the water table, which rests below the subsoil. This position is sustained by noting the difference in time of the growth of the various species of vegetation growing in the different formed soils during the spring season of the year. Look at the tiny formed leaves of the Kentucky blue and the stout form of the orchard grasses, growing in a sandy loam formed soil, presenting a very healthy condition almost as soon as the earth is disrobed of its snow formed covering, compared to those that are asleep, resting wrapped in the cold clay and the vegetable mould formed soils. Therefore thorough drainage warms the soil by keeping the cold spring water below the surface of the ground, and permitting the soil to filter the rain water and absorb whatever is valuable in it to promote the growth of vegetation, which is illustrated in drainage of mound springs, which will cause an earlier growth of vegetation which surrounds them.

The vitality and the depth of the plant roots growing in the various classes of the soils will depend upon the natural characteristics of the formation of the plant form. Also in the exact proportion to the degree of the moisture of the soil. To prove

our position, we would call your attention to growing of the several varieties of the clovers, the common red, crimson, even the alfalfa, which grows a long top formed root, penetrating the depth of the soil in proportion to the degree of its dryness. In our examination and observation of the above like plant forms, we note they naturally require deep, moderately dry soil to insure a matured growth, as in relation to alfalfa we have selected specimens whose roots varied from four to thirty inches in length from the same seeding, which very plainly demonstrates that that plant requires a deep, dry soil to make its cultivation a success. To illustrate our position, select two pieces of land that parts reluctantly with its water; thoroughly drain one piece, and let the other remain in its natural state; it may happen that when the thaws and freezes alternate in the spring the former will have but one strata of ice, while the latter has two to contend with in opposite directions, putting a strain upon the life of any plant root which few can withstand. To test this without going to any great expense, many a farmer has a knoll on which vegetation starts very early in the spring, but does not in a dry season sustain valuable plants that have roots close to the surface, but does mature weeds with parsnip-like roots. A trifling expense will satisfy anyone whether the alfalfa will grow on this kind of land. *It will not freeze out.*

The above illustration is applicable to the growing of winter wheat, and many a farmer has witnessed the disastrous effect, and the blasting of the future prospect in the yield of grain of sufficient quantity to remunerate him for the time and money expended. Again, the quantity, quality and value of the cereal crops will depend upon, and in exact proportion to the distance from the surface of the soil to the water level below, which is demonstrated by very closely observing these various conditions during the season of their maturing growth. From numerous experiments and observations, we will submit the following report, viz.: In the growing of a good sound crop of corn, equal to the standard weight to the measure, the water level should not be allowed to approach nearer than the distance of four feet from the surface of the land upon which it grows, especially if it is located upon low or bottom land. Because by the influence of hydrostatic

pressure of water, and the capillary action of the soil, it will create cold and excessive moisture of the soil, thus cutting off the necessary supply of the various classes of plant food as selected, collected and stored by the young and active fibers for the nourishment of the plant while maturing its ripening fruit. I will admit that the stalk may grow large in size, though the grain will be deficient in weight. Oats will bear about the same excess of moisture of the soil as a crop of corn.

We note the following as the condition of a crop of oats growing upon land where the water level is allowed to approach too near the surface of the soil, viz: Weak straw, liable to rust; small quantity of grain; deficient in weight. Barley will not stand the same amount of moisture as oats; also wheat is sensitive in relation to the moisture of the soil. Hence, the most satisfactory kind of wheat is grown upon land where the water level does not approach nearer than seven to eleven feet from the surface of the soil. Let it not be forgotten that excess of moisture will reduce the temperature of the soil which lies uppermost, and we will demonstrate which is the limit, as follows, viz:

Atmosphere at 70 degrees —

	Deg.	*Min.*
Gray sandy soil, dry	112	55
Gray sandy soil, wet	99	5
Difference	13	50
Time in cooling, 3 hours and 30 minutes.		
Clay mixed with sand, dry	109	40
Clay mixed with sand, wet	96	13
Difference	13	27
Time in cooling, 2 hours and 27 minutes.		
Black mould, dry	117	55
Black mould, wet	103	00
Difference	14	55
Time in cooling, 1 hour and 43 minutes.		
Meadow or grass land, wet	99	00

We will now review the condition of the classes of soil, which are naturally adapted for the growth of grasses.

In the relation of the per cent. of marsh land contained in this state, I find the following result: The per cent. of marsh land, 5,176,704 acres; the per cent. of prairie land, 5,521,817 acres; a difference of 345,113 acres in favor of the prairie land. As we

do not command the complete data to determine the following question, we would very respectfully submit it for an inquiry, to wit: In what ratio does the annual improvement of the class of land known as marsh or natural grass land compare with other classes of agricultural lands? for the quality of their product will be in proportion to the improvement they secure, which our specimen will illustrate. The formation, distribution and the condition of this class of land is variable throughout this state, for we find them located along the side of various sized streams of water, from the small pond and creek to a large sized river; soil rich and deep, resting upon a subsoil of clay, naturally adapted to produce the most luxuriant growth of the cultivated grasses adapted to that class of soils. Again, we find them located on higher elevations of land; soil good, resting upon a subsoil whose formation is almost as impervious to drainage as an iron dish. Also we find them located in the depressions of higher lands; soil rich in plant food, resting upon a porous subsoil, and that underlaid with a stratum of sand, gravel and water, located at various depths from the surface of the land, even, we found this to be the condition of a clay subsoil.

To successfully drain this class of land, it requires careful work in locating and constructing the drains to secure the desired result; because the hydrostatic pressure and the capillary action of the soil will give a wet surface to the land, which will not change the condition of the vegetation growing thereon. We have obtained the most satisfactory result in cutting the main catch ditch down to the sand, gravel and water, thus relieving the pressure, which will produce a wonderful flow of water; also quickly draining the adjoining land. I have traced the roots of the slough grass to the distance of four feet, through the soil, subsoil, and a strata of hard formation eighteen inches thick, and connected with the stratum composed of sand, gravel and water. When this is accomplished you can successfully cultivate the tame grasses and the native ones will soon disappear.

When the subsoil is of an impervious character, we have an excellent foundation for the structure of gravel drains, which are constructed in the following manner: Leave the ditch in the V

form. At the entrance with the main line of drains, place a wooden tub from six to eight feet in length, filling the next two feet with small stones, so as to correspond with the thickness of the tubs; fill with gravel in proportion to the volume of water. Six cubic inches of gravel will convey two and one-fourth inches of water. One cubic yard of gravel will construct about 70 feet of drain for the discharge of two and one-fourth inches of water. This class of drains are not expensive when the material can be obtained at a near distance from the land to be drained, which will raise the temperature of the soil from ten to fifteen degrees, in exact proportion to the depth of the drains from the surface of the soil.

The most reliable and satisfactory manner in securing the grade of all drains is to apply the following rule: Commence the drain at the outfall, then allow the water to follow in the bottom of the drain through its entire length. Return in the same manner to the outfall, which will give you one of the most satisfactory grades that could be constructed, which is most thoroughly and practically demonstrated on the farm of a Mr. Redmond, located on Big Foot Prairie in this state, who has reclaimed the wet section of his farm so that it is now the most productive field in that section of the state.

The tile is laid at the average of four feet from the surface of the soil; the style of tile he used was the half round or the horse shoe, laid upon a strip of narrow board, distance apart from two to five rods, in proportion to the degree of the excessive wetness of the soil. We have reviewed this topic in its general character, and now we will briefly review the collection of the specimens brought, stating the condition of soils upon which they grew, illustrating the failure or success in the application of various systems in land drainage for agricultural use.

Mr. Burdick showed the convention his instruments for measuring the height of water in the ground, and also specimens of wood affected by water, and different grasses and grains grown upon wet and drained lands, respectively.

QUESTION BOX.

Which is the most advisable, fall or spring plowing, for corn?

J. M. Smith — I will give a little experience that I had, two years ago, in that respect. I had a piece of land that I wanted to plant with corn the following spring. I plowed nearly the whole of it late in the fall, but it froze up, and left a little strip on one side that I could not plow until spring. In the spring, I plowed it nearly as early as the ground was in good condition. I planted it with corn. It was all planted at the same time, attended just alike in every respect; but the strip of ground that was planted in the fall had a very handsome crop, and yielded over a hundred bushels an acre. The other did not yield over twenty-five.

Mr. Field — I wish to ask whether the plowing was the same depth?

Mr. Smith — Same depth. Just alike, with the exception of the time. The question with me was whether or no the plowing early in the spring did not affect the ground and injure it?

Mr. Field — Was the ground very wet when you plowed it?

Mr. Smith — No; it was in good order, but the grass had not started at all.

Chester Hazen — I think it depends somewhat upon the condition of the land you are going to plow. I have had good results in plowing up old pastures and meadow lands in the fall, plowing middling early. If you leave it until spring, you don't want to plow it until the grass gets to growing on it, just before you want to plant it. I think land broken and planted right off after you have a good start of grass on it, will do as well as the fall plowing. Plowing early I have found to be injurious.

Mr. Smith — Why is it that it is injurious?

Mr. Hazen — On mine there was more grass than there was on the fall plowing. Before the grass commences to grow and get started up, if you smother it, it starts up the other way, and comes up between the furrows. It isn't right. If you have some grass it foments under the furrows and creates a warmth. The corn won't start very early, but when it does start it will do better

than the fall plowed land. My experience has been, on old land plowed in the fall, it don't do as well as in the spring. If I had stubble land to plow, I would plow it in the spring. If I had sod land to plow, I would plow it early in the fall, or else late in the spring, the last thing before planting.

Mr. Gill — I have practiced for some years plowing everything I could plow in the fall. One reason was, I thought it was beneficial, and another reason was that I didn't have so much to do in the spring. My neighbors are every year more and more getting into that way.

Two years ago, on a piece of timothy sod, I plowed about the first week in September very thin, and then when it came pretty near planting time cross-plowed it by putting on three horses abreast, and turned it pretty well down, and that is about the most satisfactory job I ever did in sod.

I have frequently plowed sod in the fall late, planted it in that manner, and had good success. I would greatly prefer to have stubble ground plowed in the fall. I noticed this last spring. I had about fourteen acres of stubble ground plowed in the fall, and five acres adjoining it plowed in the spring; both planted with corn the same day, and during the dry weather we had in June the fall plowed region went ahead, and I should think at one time there was apparently two weeks difference in the growth. As far as my experience goes, I prefer fall plowing.

Mr. Webster — I have had some considerable practice in green ground. I raise considerable corn every year, and think it about the best crop I raise. I plowed many years in the spring, but changed to fall, and my experience is that fall plowing for corn is best. If I am going to plow sod, I plow it early in the fall or else wait until the grass gets started in the spring. I think sod ground is better by plowing after grass starts than before it starts. But in stubble ground I prefer plowing in the fall unless I am going to manure. If I haul manure in the spring, I would leave it until after I got my manure spread, and then I would plow in the spring.

Mr. Palmer — I think if you plow shallow, the fall is the better; and if deep, the spring is the better.

QUESTION

Is it advisable for the average farmer to grow tobacco?

Mr. Babbitt — If a man is educated to smoke, I should advise him to raise his own weed and make his own cigars. I think it is advisable for a man to raise anything that he is well adapted for. I don't care whether it is tobacco or anything else.

QUESTION.

Is there any way to kill out Witch, or Quack grass?

Mr. Dore — Clover will do it.

Mr. Burdick — Thoroughly pasturing with sheep will do it. Will any man present acknowledge that he has it on his farm?

A voice — Yes, sir. I will acknowledge that I have it on my farm, and sheep won't kill it, either.

Mr. Underwood — I proposed that question, not because I have particularly got it, but my neighbor right adjoining me has got it, and it is coming. It has run his meadow out. It has run timothy and clover out; and it looks as though it is going to run me out. It is the worst thing I ever saw.

N. N. Palmer, Brodhead — I think that Quack grass can be killed by summer plowing, if you follow it up very persistently. You can kill it by covering it in June.

Mr. Stickney — You rarely see the grass grow up and head out to make seed; and its propagation does not depend in any large degree upon its seed. Any fragment of root is the seed. The root is the principal part of it. I have been familiar with it always, and I have had to contend with it in the same way that Mr. Underwood may have to sometime. The best thing I can do with it is to vacate the land for all crops for one season and plow and drag thoroughly late in the fall. It disturbs the roots so that the winter freeze kills them very generally. That, with a very careful hoeing the succeeding year, and getting out the fragments that may live, will very near obliterate it. You will have to do it again in five years, perhaps. It is hard to get rid of. It has not a deep root. The roots are just under the surface.

A voice — Can you dig it out?

Mr. Stickney — Very possibly. You may dig it all up. Where I could not plow I have taken men with spading forks and picked out every piece. After you have done that you must be careful where you deposit it. If you deposit it in the road and it comes moist weather, it will take root and grow.

Mr. Palmer — This grass has one redeeming quality. It is one of the best pasturing grasses that I ever knew. I have one field that is fairly sodded with it. I keep that for pasture. Cows or sheep, or any cattle prefer the grass to anything else I have on the farm.

Mr. Field — There is another comforting feature about this grass. No farmer has got it unless he has got very good land. I have had experience these last two seasons on a prairie farm with this grass, and the land was new land, too. It seemed to be natural for the soil. It came in the second or third year I broke up that prairie land. The land had been ploughed in the autumn for both oats and corn. I put in oats in some of that land. This grass had come up in it considerably the year before. I cultivated that land thoroughly in the spring, sowed it to oats, and there was hardly a spear of that grass to be seen on it. On the same kind of land I planted some corn, and that grass had got nicely started. It troubled me all through the season. I don't know that it injured the corn much. It was all full of it. The next spring I turned that over when it was ready for corn planting, and there was hardly a spear of grass appeared on it. I agree with Mr. Stickney, that to cultivate it thoroughly, bring it to the surface, let it have the action of frost or the action of dry weather, and that will kill it out.

Mr. Goss — I have my doubts very much whether you have ever had any Quack grass. I have had it on a small patch. It has lived and lived weeks on the top of the ground, in dry weather, and the more you cultivate it, the worse it is. I have found out that the roots get very close to the top. In time, they will get up so that they won't be over two inches from the top; and from one stalk, not six inches long above the ground, I have seen white roots running out four feet. On my own farm I found a root with only four spears, and no one of them over two inches

long, and there was as much as eleven feet of roots growing out in different directions. I don't think the gentleman has got the genuine. There are a dozen species. There is one particular genuine Quack grass that can never be killed by cultivation, unless a man sifts the soil.

QUESTION.

How shall we winter our bees?

A voice — Put them in the cellar.
Mr. Field — See that they have plenty to eat.
A voice — Keep them dry.

QUESTION.

What course can a young man pursue who has run in debt for a run down farm, so as to improve his farm, support his family and pay his debts?

A voice — Go west.
A voice — Go into politics.

QUESTION.

How can I get rid of Canada thistles?

Mr. Martin — There hasn't anybody been troubled with them but myself, in this state, that I know of. I had some apple trees that were set out before I came from York state, and it is supposed that the Canada thistle came in the root of the apple tree. It commenced spreading around, and when I bought the place, there was quite a bed of it. It spread on every side, except the south side of the tree, and by plowing or cultivating some roots, got dragged off fifteen or twenty rods. I put on salt, dug them up, but I never could get them out until I sowed clover, and cut the clover twice, and I have never found a Canada thistle there since.

Mr. Gill — There is one idea both in connection with the Canada thistle and Quack grass that I want to speak about. I have been on the same farm twenty-four years. I have been well acquainted with this Quack grass ever since I knew anything, but I

never saw it in the state — the genuine article — until within a year. I have seen a grass that grows on low ground that has a root a little similar, but it is not the genuine article. I found it in my garden within a year, and I am perfectly satisfied I got it of some of these nurserymen; and that is where friend Martin thinks he got his Canada thistles. Now I have no doubt we get a great many of these things through that means. I am satisfied that I imported it with raspberry roots. I think we should be careful, when buying these plants of nurserymen, to look them over very close and see if we don't get more than we bargain for.

Mr. Stickney — I have no doubt we have disseminated a lot of Quack grass from my place. I am going to balance accounts with the farmers. We buy lots of manure from the hay brought into Milwaukee from twenty miles all around us. We never fail to get a grist of seeds from the outside in the way of Quack grass and Canada thistles, and mustard and snap grass. Those four items we get from all points. If the farmers will quit even I will.

Secretary Bryant — This question of "How to kill thistles," was asked in the *Country Gentleman* some time during the month of December last, and brought out letters from all over the land. If any of you take the paper, you remember reading them. The sum and substance of all of them was cultivation, salt and clover.

Mr. Stickney — I would add, you can very effectually keep them in check, if not destroy them, by two cuttings with the scythe in one season, just as they are coming in, when the stalk has its full size and become hollow. All the qualities of the plant are ready to be expended in the production of seed. If you cut the weak growth that comes after that, in the same season, you kill nineteen-twentieths of it. That is the easiest and simplest check you can get.

Mr. Daubner — I wish to remind Mr. Stickney that Canada thistle seed isn't ripe when hay is cut. (Laughter.)

Mr. Stickney — I take it back. The gentleman lives about six miles west of me, and our prevailing winds are from the west. (Laughter.)

Mr. Daubner — I have no Canada thistles on my place. Two

years ago I bought two hundred trees of Mr. Stickney, and I have some Quack grass.

Adjourned to two o'clock.

WEDNESDAY, 2 O'CLOCK P. M.

Convention called to order by President Fratt.

CLEARING OFF TIMBER LAND.

BY J. W. WOOD, BARABOO.

It seems almost unfortunate to have an article for this convention on the subject of tree destroying, especially after reading again the pleasant letter from Dr. Warder, of our convention a year ago, entitled " A plea for tree planting," and published in our Transactions.

In fact, there has been so great a pressure brought to bear in favor of tree planting, especially in the west, within the last few years, that it makes the poetical side of a man feel guilty of vandalism to take a well balanced axe, examine its edge to see if it is keen and well polished, and start for the grand old woods which have been hundreds of years growing into their present magnificent proportions, with the intention of utterly demolishing and exterminating them, root and branch; but the practical side of the man comes to the rescue when he sees clearly that it has always been, and is yet, the only road to comfort and prosperity in all heavily timbered regions.

The early settlement of our national domain progressed but slowly until it passed the timbered boundaries of Ohio, Indiana and Michigan. Since emigration has struck the prairie regions of the west, it has gone like wild-fire, and in the open prairie, five years will do more towards surrounding people with the comforts of life than twenty-five will do in the heavy timber.

Men are mourning over the wasted hill sides of New England, and measures are being instituted for replanting them with trees; but it does not follow that the fathers made a mistake in cutting them off and making them contribute towards their support. If

it is best to replant them, let it be done; it is in harmony with the great system of rotation in crops, which nature adopts, and which is imitated by all intelligent farmers. If it had been possible to have farmed those hill sides so as to have preserved their fertility, it ought to have been done; but agriculture has so far in the world's history been a wasteful process, and the fertility of the earth has diminished in all districts confined to their own resources for fertilizers. Scientists are now agreed that our whole solar system is in a transition state towards death and darkness, and that the appearance of man on our planet, and his full career, will form but a brief chapter when the whole history of the universe shall be written. If this general law of exhaustion applies in full force to agriculture, it teaches us the duty which we owe to posterity of husbanding our abundant natural resources and so preserving the fertility of our land as long as possible. In the worn out lands at the south, neglect alone is all that is required to secure forest growth. The land is only held in cultivation by constant diligence.

Prof. Searing told us last winter that in Northern Georgia "the pine appears to spring up spontaneously almost everywhere in neglected places, and grows with surprising rapidity." I wish it were so more generally in the north. It is not unusual, in reading the literature of forestry, to find it urged as an inducement for planting trees, that forests promote rain fall and in many ways modify climate. Some of these claims I regard as good, and others I do not. That the removal of forests will dry up wet places and so affect springs and wells, and also intensify floods and hasten freshets, is no doubt true; and for this reason it is often essential to the general health of a county that it should be cleared up. In fact, a single tree or row of trees casting a shade into the road will often prolong a muddy spot until it comes to be regarded as a nuisance; but that forests affect the general rain fall, I do not believe. The sources of our rain storms are often remote, and nature does up its work on so magnificent a scale that our heaviest timber is relatively no more than the moss on the top of a stone, and the myriad blades of grass may be as efficent conductors of electricity, if any are needed, as the leaves on the tallest oaks.

A timber belt may check the wind on the earth's surface, just as a stone in the bottom of a river may form an eddy in which a fish may rest, but it does not affect the great flow of the water above, nor does the timber affect in the least the great flow of the atmosphere over our heads. Whatever may be said in favor of forests, the fact still remains that over immense areas in middle and northern Wisconsin our only road to prosperity lies in the destruction and removal of these primitive forests.

The first thought of every person on looking at this timber is to preserve it for the time of scarcity and high prices foretold by seers, and which will surely come; but land has been held here for thirty years, near flourishing towns, which will not, this winter, pay in timber for thorough clearing. Taxes have eaten it up more than once, and tax sales are common in all heavily timbered sections. A man settling on new land had no doubt better take the open plain and depend on raising the necessary wood, rather than choose a timbered track and depend on hewing his way to a farm.

Farming land which has to be cleared of timber, in a country where it is plenty, is always very costly, and owing to stumps and roots, makes for some years expensive farming. It takes a generation to open up a farm. Timber preserved may profit grandsons, but not so much as it would for the grandsire to clear it off and till it intelligently. There is one thing in favor of the timber — a man who has to clear off his farm by inches cannot run over it and ruin it so fast as he can on the prairies.

After thirty years of waiting, on the edge of this great northern timber belt, our best tracts are not worth as much now in timber as the same acres would be in corn or clover, and the advent of our railroad has opened up tracts remote from us, where men are content to get paid for the actual labor expended in removing their timber products, rather than pile and burn them for nothing, so that our local market is no better than it was before the railroad came. In the meantime the grub-land, interspersed through the southern prairies, has, since the fires have ceased, grown up to small timber, and the country at large is better supplied with wood than it was when first settled. In the Baraboo Valley, on

the south side of the river, the farms have all been opened in heavy timber, and the land is so good that the clearing process is yearly pushed in an increasing ratio. At first the labor was purely destructive, but the erection of mills and factories soon led to the utilization of the wood, so that at the present time there is supposed to be a small margin of profit in clearing land near our villages. I have been wrestling with this timber for the past ten years, and have several men at work at it now. I thought that some freshness of effect might be had in our convention by giving some of the methods of destruction in contrast with those of propagation.

Our clearing off is generally done in the winter. It would be surer death to the stumps if it could be done while the trees are in full leaf, but our summers are occupied in other work, and choppers can be more easily hired in winter when farm work is laid aside; and then again we need the snow for removing the logs and other heavy products.

We prepare for our winter's work as early in the fall as possible, and in the first place we cut closely all of the undergrowth, piling the brush carefully, so that it may be compact enough to readily catch fire. We pick up the down stuff as far as we conveniently can, piling it with the rest; a few rotten chunks thrown in with the brush will, when dried out, assist in setting the fires. We next cut out all the small timber suitable for fencing and either remove the rails or pile them in compact heaps, so that a tree accidentally striking them will not crush them. The stumps of all this small timber are to be cut so low that a sled can readily pass over them while doing the heavier work.

A good woodsman is careful in felling his trees to lay them where they can be readily worked up without interfering with other trees, either by lodging in their branches or crushing the smaller ones in their fall. Intelligent men acquire great skill in woodcraft and soon become expert in all departments of the work. We haul our logs to the neighboring mills to be cut for ourselves, or we sell them outright, as we may choose. Good oak logs, butt cuts, will bring seven or eight dollars per thousand, scaled by Scribner's rule. Basswood and maple, suitable for

furniture, will bring about six dollars per thousand; dry maple wood is now worth three dollars and fifty cents per cord; oak about three dollars, and basswood about one dollar and fifty cents; the latter is mostly sold to manufacturers for engine fuel. We use a horse drag saw to cut up such logs as are unfit for the mill, and too knotty and rough to split into four foot wood. When cut into stove length almost anything can be split. The brush must be piled in high, close heaps, as a properly made heap will all burn up, while a straggling heap will be difficult to set on fire, and will, when burnt, leave a large ring of *chevaux-de-frise*, which must be piled over again in order to get it to burn. Get off all the wood, rails and logs by the middle of April, as the first dry spell of spring will generally give as good a burn as can be obtained later in the season. The brush may not be so dry, but the leaves, grass and weeds lie loose and burn readily, while later in the season they get beaten down by rains, and grass and weeds grow, which will check the spread of the fire.

A good, thorough burn is greatly to be desired. Before setting the fires, get some barrels of water arranged in convenient places for protecting fences, buildings or wood, and be sure not to burn until this is done. Choose a dry time, with a strong wind blowing in the right direction, for safety; get some help on hand and then set the fires. There are ten chances to one that you will burn up something that you don't want to, even with all these precautions. The brush piles must be watched, as a little labor in throwing on the straggling brush from the windward side, while the ground is hot and the embers still burning, will help greatly. The log piles must be kept rolled together, and it is well to rake the chips and trash around the stumps, as a little scorching will hinder many of them from sprouting. The ashes must be scattered from where the largest piles are burned.

It is very important to kill the stumps as soon as possible after chopping off the timber. If left without attention there will soon be a dense second growth requiring much labor to remove it. If clean and thorough work is made at first by close pasturing or diligently sprouting the stumps until they are killed, the land can be plowed sooner than one would suppose. There is no plant that can survive a year's deprivation of foliage.

The use to be made of the land will depend of course on the necessities of the owner. If the timber was so close as to keep out the grasses, a good meadow can be had by sowing to oats as early in the spring as possible and seeding with timothy. It is of no use to sow clover on such land, except for pasture. It has often proved a better way, to sow with wheat in the fall and seed; a good crop is often raised in this way. A heavy A harrow with inch square teeth is best for harrowing the land. This method will give a smoother bottom that can be obtained after ploughing. It is best to avoid ploughing such land if possible. It is embarrassing to have a horse get both hind feet into a hollow stump and then fall down, as has happened with me. The average man will get very tired by the time he has pulled his plough five hundred times out of places where it took a strong team to pull it in. If new land is well seeded to timothy it can be mowed, but the best use of all is to use it for pasture. Stock will eat off the sprouts from the stumps, and so kill them without the annual use of the axe. I cannot too much emphasize the importance of close pasturing. I cleared off a piece of land eight years ago which was enclosed so as to exclude stock, and some of the old basswood stumps which are rotted off to the ground are still seeding up sprouts. On another piece which was pastured, nothing survived the second year. If animals neglect the sprouts through an abundance of other feed, in the spring, so that they become too tough to be eaten off, they can be cut after harvest, and the stock will take care of the later growths. The pignut and butternut sprouts must be attended to with the axe as animals generally refuse to eat them. The work of sprouting stumps should be done with care. The sprout should be split from the stump, taking with it as large a piece of the bark as possible. It will never be killed by cutting it off above where it joins the stump. So long as the sprouts are left growing, they will keep a portion of the roots alive, and it will be those roots which run near the surface and interfere the most with the plough.

Our new land has generally to pass through what we call the thistle stage. The bull thistle seed which we see floating in the wind every fall, lodges quite abundantly in the timber, and

when we cut it off the ground is well seeded by them. I know of no way of getting rid of them. They grow very luxuriantly in the leaf mould, but are not very noticeable after the second year.

In three or four years the smaller stumps will begin to come out, and in six or seven years the ground can be very well ploughed, as all but some of the more durable stumps can be removed. In this way the land will have been profitably used, and much wear and tear of temper and teams will be avoided.

We ought to remove the stumps from our fields as rapidly as possible. They form hiding places for vermin, and become centres of dispersion for many kinds of foul seed. They interfere with all the operations of farming. We need not wait until they are entirely rotted out. Their period may be hastened in many ways. We do not wait, however, until the stumps are all removed, before we introduce the mower and reaper. If the bottom is well cleaned up, and none but stumps which show plainly in the grain are present, we get along very well with machinery, by putting a man with cradle or scythe, as the case may be, at work with the machine to clear its way around them.

There are machines made that are very powerful and effective in pulling grubs and stumps, but it takes too much time to handle them, and they often pull up an amount of dirt and sod which it is difficult to manage. There is nothing so profitable for us as to let a stump alone until its hold of the earth is greatly weakened by the rotting of its smaller roots. A stump which will jar in its roots by a heavy blow from an axe can generally be removed with but little labor. A strong team will often tip it over. Where the top breaks off, the remaining portion can often be split through the centre and one-half turned out by prying over the other half. A beetle and wedge can be used to split the more refractory. A twelve-foot lever planted under some projecting root will sometimes start a very formidable stump, and help a team in tipping it over. A few blows from a heavy sledge will often knock a stump all to pieces.

The best stump puller I have ever used is made by standing a strong lever, ten feet long, upright by the stump, and wrapping it to the stump with a chain. Another chain passes from the top

of the lever to the axle of a wagon or cart, which is loaded with stone enough to keep it from lifting. The team then draws, and is assisted, if necessary, by the digging, prying and cutting off of roots. It is astonishing what stumps can be taken out in this way. A man soon learns to tell by striking a stump whether it is worth while to attempt it or not. A stump which would require more than ten minutes to extract had better be left until the next occasion. The time to work at them is either early in the spring or late in the fall, when the ground is wet. It needs two or three persons to work to advantage. We often see a Wandering Jew of an article in the papers, saying that saltpetre or kerosene can be used to advantage in burning them out. I have tried them, in both green stumps and dry, without the least perceptible benefit.

When stumps get old and rotten, there often comes a dry time in which they can be burned to advantage. Such stumps as can be pried out can be used in burning others. I burned a hundred stumps from an acre of land by the use of sheet-iron stoves. I made four or five of them, of different sizes, out of some old stovepipe, joining two lengths for the height and giving them a conical form to fit the stump. A flattened joint formed the top, from the center of which arose a joint of six-inch pipe, to form a draught. The old rubbish which abounds in a timbered country, with loose and broken stumps, formed the fuel. I would start a fire by the side of a stump, set over it a suitable sized stove, place the cover on top, with a sod to hold it in case the wind was blowing, leave sufficent space beneath to form a draught, and go off about other business. Some stumps would be consumed by a single fire; others would require more fire, just like a green chunk in any other stove. I only visited the fires once a day to set them going, and, while the process was slow, it was effectual and cheap.

Basswood stumps are the most refractory, and unless very rotten and dry cannot be burned out. Maple and elm burned the most readily, while oak seldom burned out with a single fire. When a stump was burned to the ground I could remove the stove and lay a chunk on the embers, which would retain the

fire and eat its way down to the dirt. In this way I make all my rubbish useful. In respect to dynamite, I have corresponded with the agents for its sale until I have learned that it is too expensive to be used by us. There are places where it may pay. It might be just the thing to hoist some of the more refractory fellows, but we always have time as an element in our favor; all that we need is patience. I have indicated many ways in which their periods may be shortened. Where their number is reduced to three or four solid old oaks to the acre I begin to think of dynamite, but it is not probable that I shall ever use it. I fear it might hoist the wrong stick of wood.

After which a paper was read upon "*Undeveloped Resources*," by A. L. Hatch, of Ithica.

Mr. Gill — I would like to have the gentleman give the best manner of protecting raspberries in winter.

Mr. Hatch — I have grown only the Clark raspberry; opened the earth, covered with earth, and protected with litter outside. The best authorities and the best experience that I have had, is to cover first with earth, to exclude the air, and then protect with some coarse litter outside. Snow is a good protection. But if you don't have snow, and it thaws and freezes all winter, in the spring you may find your vines smothered to death. I would recommend you, if you are interested in it at all, to get Purdy's Small Fruit Instructor.

Mr. Field — You don't want to mulch so much but what the air can get to it.

Mr. Hatch — First exclude the air with the earth, then protect the earth from making it air-tight, by covering with litter outside. You will lose your plants if you cover outside and it freezes. But the protection is applied if you cover first with earth, and then cover with litter outside. Loss has been sustained by covering with litter, especially a large body of manure that would decay during the winter, and injure the bush or vine where the decay took place.

Mr. Field — You would not cover so much as to prevent the earth freezing?

Mr. Hatch — No, sir. Purdy's Small Fruit Instructor, costing twenty-five cents, is worth more than any other book I ever saw on the subject. A. M. Purdy, Palmyra, New York.

A voice — How do you manage to bend over the vines without breaking them?

Mr. Heath. — Give them a pretty stout pull, and bend them down close to the root. If they are very stubborn, place a clump of earth on the side. It takes two persons. Grapes may be treated in the same way. Cover them first with earth, and then protect with straw outside. As concerns protection, there is nothing equal to earth, provided it is protected from the extremes of freezing and thawing.

Mr. Adams — I will ask you about pinching red raspberries.

Mr. Hatch — Red raspberries are different in character from black. I would not go above two feet. I pinched some off at three feet. If you have the Clark raspberry, and wish to break it, it will rebranch and make a very awkward bush. You can do better and not pinch it off. I would say the red might be pinched from two to two and a half feet high.

Mr. Gill — I bought a number of plants for thornless, and I came to the conclusion they were not. I ran across the gentleman I bought them of, and spoke to him about it. "Well," said he, "they must be the Mammoth Cluster." I said, "I hope they are." I had found it was a better raspberry. Last winter I came to the conclusion that they needed protection. I did not know how to go to work to protect them. I found a great many had winter-killed, and I have great doubts in regard to this manner of covering them with earth being proper, because I do not think I can pin them down and cover with earth without injuring them. I will tell you what I did. I set up some short crotches and put on a lot of poles and put some corn stalks across.

A voice — Made a grand place for mice.

Mr. Greenman — I wish to say a word in relation to protection of the grape. The object, I understand, is to protect the roots. They are hardy enough as far as the top is concerned. I lay down my vines and put sufficient soil upon them to hold them

down, and after the ground is frozen I cover them with sufficient litter to keep them frozen until they thaw out for good.

Mr. Norton — My vineyard isn't very extensive, but I have tried earth and straw, and it generally succeeds. I know that grapes do not bear every year the same. Two years ago I brought my grapes down to the ground, laid a little straw upon the ground and then put a board on each side and one at the top, and I never had such a crop of grapes in my life as I had that year. I have done the same thing this year, and I will tell you, if I live long enough, how they succeeded this year. They don't freeze and thaw. They keep dry. I had a profusion of Concord grapes, and they were a splendid grape.

A voice — How many acres did you cover?

Mr. Norton — I had a couple of rows of vines about forty yards long. I did that as an experiment. It succeeded admirably.

Mr. Reed — I lay them down when they are pruned, on the renewal system. I put a sod on here and there, to keep them down; go in the oak openings and get some leaves, and scatter them on, and put dirt enough on these leaves to keep the wind from blowing them away. There is nothing to attract mice. They never get under the leaves. I have found it far better than soil.

Mr. Gill — I would like to have you tell me how I injured three or four of my grape vines last winter. I was trying this renewal system which I heard some of you explain. I was a new beginner. Last winter I took my canes, laid them down and covered with soil just sufficient to protect them, and waited until I was pretty sure the mice had gone into winter quarters before I covered them up, and let them lay in the spring long enough to be sure that the frost was pretty well over before I took them up. I took them up, and I think there were at least four of my vines that started to leaf out and then went back, and I have always accused myself of injuring those canes in some manner in laying down and taking up. I would like to have you tell me the cause of that.

Mr. Jordan — I would like to say a word upon the question of undeveloped resources, touching fruit trees. My location is high

land, with limestone cropping out all around the hills. I had on the north a slope that was covered with young timber, too steep to plow, and too stony. For a few years past I have been cutting the timber off this land as I needed it — cutting everything close to the ground except very large stumps, and digging holes and planting orchard trees. Twice a year I mowed off all the weeds and brush that came up ; and I believe it is going to be a success. I have trees which have been thus planted many years, and the soil was so thin that I removed a bushel basket full of stones in cutting the hole. Then I would haul chip manure and dirt and fill in. I have some ten or fifteen acres in orchard of that class of land, and I think it is doing as well as other land.

Mr. Plumb — I am glad to hear this testimony from our friend from Minnesota ; and when he speaks of planting orchards on new land, I think he has suggested one of the most practical and best methods of starting an orchard upon new lands, and especially upon that class of lands. I have been watching and experimenting in this now for some eight years. It is a complete success in every case where it has been faithfully tried. I would rather plant an orchard on raw prairie or raw timber land without touching a plow to it, with a proper after treatment, than to take that same land after it has been cultivated for a series of years.

Mr. Field — I would like to ask Mr. Plumb whether he can take the raw prairie and plant a tree, turn the sod back again so that the sod shall grow right around the tree all the time, and have that succeed.

Mr. Plumb — The after treatment is another thing.

A voice — I will ask you what kind of timber land ?

Mr. Plumb — Any land that is good enough to bear good timber and is proper for an orchard I will plant it on.

A voice — You cannot grow any fruit tree in the neighborhood of an oak.

Mr. Plumb — I can cite the gentleman to several orchards that have been started within the last eight years, that are a complete success.

Mr. Field — On timber land, I think you are correct. On the prairie, I think it is a mistake, unless you rot the sod first.

Mr. Plumb — The difficulty in prairie orchards is, that the trees start forward, but in a few years they begin to die. It is from the excessive heat which they have. You leave the native sod; turn your sod bottom up around your tree, and give it sufficient mulching to give the tree cultivation enough to insure its growth, then you have got the tree restrained so that you will retain its life. It will not overgrow, and it will become a healthy, long-lived tree.

Mr. Field — I conceive that can be done if the sod is rotted around the tree.

Mr. Wood — In these side hills, how large a place would you dig?

Mr. Jordan — At least as large as the largest common wash-tub. I set the trees straight up and down.

I will say further, about the roots growing in stony ground, that in excavating for a cellar, I found roots that came twelve to fifteen feet down through the limestone.

Speaking about trees being planted upon the raw prairie, we, in Minnesota, have adopted many plans and customs that were possibly adopted here in an early day. We have got men in western Minnesota who have got their third farm, never planted trees, put out plants or made gardens. One man says he has lived twenty years, and never had a currant bush or grape vine, and thinks he can get along without.

Transcendents I have often seen planted on the raw prairie sod, with a little mulching, and do well. That is a rapid grower. I think a majority of our fruit trees will not succeed in the uncultivated prairie soil.

I have been a good deal troubled on my place with rabbits. I put a high board fence up for the purpose of protecting from rabbits and thieves. I had a number of gullies, where there was almost everything growing, and wild grapes in profusion. I cleared these all out, and planted two fruit trees. They are doing nicely. I think all such places, that are a shelter for vermin, can be made very useful for putting out trees and plants.

A voice — Have you any of them fruited?

Mr. Jordan — I think none of those that were put upon this uncultivated land.

Mr. Philips — I would like to say a word for fear somebody might be misled. I have had some experience in setting trees on new land. I hadn't patience to go to work and break the land and cultivate it, as it should be before the trees are set out, but I went to work and set on new land. I believe Mr. Jordan's plan is right, but you want to work understandingly. I think if you dig a hole six or eight feet square, two or three feet deep, and draw in some good soil from any place where it has been thoroughly cultivated, and cultivate the tree, that you will have it growing and raising fruit. The trees I set out on new land have pretty generally been a failure, except one variety, which will grow almost anywhere. The land needs working and cultivating.

Mr. Tuttle — It is bad enough to recommend trees put in ordinary sod. But to recommend growing them in a brush pasture! I would just as soon put them on the side of Devil's Lake bluff. I knew an orchard planted that way some twenty years ago. I told the man who planted it that he never would raise anything there. He never has. The trees died out years ago. You might possibly dig a hole large enough, and get in good soil, get a growth for two or three years, and perhaps my friend from Minnesota may have done that thing; but unless you cart in considerable soil, you cannot even get any first growth to amount to anything. There are certain varieties of trees that, even in land that has been long cultivated and seeded down, will not bear fruit unless the ground is cultivated. I have trees standing in my ground that have stood for ten or twelve years, and never have borne anything. I let them stand a little too long in the grass. There are varieties of trees that you may grow in the grass. If you want to grow apples you must cultivate the ground just as much as if you were going to grow corn. You cannot grow fruit without cultivation. In the east, or perhaps on the lake shore where there is more moisture in the air, you can let your ground lie long in sod; but in this dry atmosphere the trees will starve to death. They won't make growth enough, if they are permitted to lie in that state, to even keep healthy. Mr. Kirk, at Devil's Lake, when he first commenced his orchard, seeded down to clover, and followed the practice, for years, of mowing that clover and

putting it under the trees. Finally, to save any part of the orchard, he had to plow it up.

A voice — Do you plow every year after the orchard is set?

Mr. Tuttle — No. Seed down for perhaps two or three years in clover, and then plow it up. It won't do to let June grass get in and remain any length of time. It must have cultivation.

A voice — How would it do to seed down the first year, and let it remain two years?

Mr. Tuttle — I would recommend the first five years after setting trees to cultivate the ground. After you had cultivated your ground for four or five years, and your trees have got a good vigorous growth, you might seed it down for a year or two. If you want to make a business of growing fruit, there is nothing more necessary than cultivation. I can grow more fruit on one apple tree, with good cultivation, than you can grow on ten with sod.

Mr. Jordan — Perhaps I did not make myself fully understood. My idea of cultivating orchards is exactly as the gentleman has expressed. What I said in reference to planting in uncultivated and ungrubbed land, was land too steep to cultivate where we had cut off healthy timber. No grass sod.

Mr. Tuttle — If you afterwards keep all grass out of that soil you might do something.

Mr. Norton — It should be borne in mind by this assembly, that trees and all vegetables are full of mouths both top and bottom. They are stretching for food. If you deny them that food they will die. In a damp country like England, where the winds blow from every quarter full of moisture, the leaves of the trees receive a great deal of moisture and they are more healthy. A tree there a hundred years old is bearing, but here about nine or ten years is the life of your apple trees. They must have moisture. This is a dry atmosphere, and they cannot get a great deal of moisture through the mouths of the leaves upon which they live. There are also the roots full of mouths, and you must cultivate the ground and let in the atmosphere and rain to strike the roots of the trees, or they will die. If it is an unbroken prairie soil, they starve to death.

Mr. Sheldon — I have had an experience of forty-five years, in La Fayette county, in fruit growing. Our first fruit was set out in 1835, in the prairie sod. One or two years sufficed to show us our mistake. It was all gone. I have planted grapes, apples and peaches, or my father before me has, and all kinds of fruit. We have done the best we knew how. We have had horticultural works in the house, and have studied them some; and after all this discussion, there is an undercurrent of thought which asks, Does it pay at last, in Wisconsin? This is rather taking the matter by the horns, to propose such a question as this. We take our fruit to Darlington, and sometimes they buy it and sometimes they do not. The last time I was in Darlington, I was solicited by a merchant there to buy a couple of barrels of beautiful Michigan apples. I told him I would take a couple if he would take four barrels of mine in exchange. He didn't see any profit in that kind of exchange. I had Russets; I had Tallman Sweets; I had various kinds of apples; but take what care I would, they would deteriorate in quality so that they would not stand the test alongside of Michigan, Ohio or Indiana apples. I could put potatoes on that soil, and buy my apples from Michigan at less cost than I could raise them. My grapes are the same. And the question now is, hadn't you better raise corn and pork where you raise these apples, and buy your apples from Michigan?

Mr. Martin — I have got an orchard that pays me over a hundred per cent. I went onto the place fourteen years ago this spring. I found the trees decayed, and between the trees was a good ditch both ways. I knew nothing about it. I had been a butcher previous to that. I thought that it didn't look right, and I leveled it down; and since that I have worked the ground every year. I found it very difficult to work with a horse, and that I had got to do it with a hoe. The worst trouble I have had is to keep my trees from bearing so much that they will burst all to pieces. [Laughter.]

This gentleman says our apples won't compare with Michigan apples. I shipped a hundred bushels to Minnesota, and they came in competition with Michigan apples and Ohio apples, and mine would sell more readily and were a better apple.

QUESTION BOX.

How can we best utilize and manage to a profit old pastures?

Mr. Hatch — At the agricultural and horticultural convention, held last week in Richland county, one of our dairymen, who had had fifty years' experience in dairying, said that the older a pasture was the better it grew as a pasture. I suppose the way to get the most profit out of an old pasture would be to keep it a little longer.

Mr. Babbitt — I have a pasture of about eighty acres of blue grass — the grass that makes Kentucky so famous. A number of years ago, in traveling across the plains and seeing the manner in which the herders kept their stock, I assumed that if we managed our pastures here at home something upon that principle — that is, by not overfeeding, or putting too large a quantity of stock upon a given space of land — we should secure benefit; and that this matter of allowing stock to run all the year round depended upon just one thing; the advantage that they had over us was just simply this: that they did not use up the early growth of the pasture, but kept it for the stock during the winter. I went home, and adopted that principle, and I refused as high as two dollars a week for pasturing in Rock county. The result has been this: I have upon that pasture to-day twenty horses and about fifteen or more cows, that have run constantly all this winter. The horses never have been inside of a stable during these winter months. I have some open sheds that they can run under. I take a ton of straw, or about that, every other day, and scatter it all around the barn yard; let them have all they want of that, and the balance of the feed that the stock gets is the grass from the pasture. They are there constantly. They spend but very little time in the barn yards. My stock to-day looks as well as the stock of any farmer within the hearing of my voice.

Now, gentlemen, I believe that we are apt to overwork our land as well as to overwork ourselves. If you want your pastures to remain good, and stay by you through thick and thin and through hard times, don't strip it in the fall of the year.

I broke up two acres ten years ago and got a crop off from it. I let it remain. Never seeded it at all, but the grass has come

right back, and I defy any farmer in this room to tell the difference between the old pasture and that two acres. It has all been seeded twice with blue grass. Now take care of these blue grass pastures of Wisconsin, for there is wealth in them.

Mr. Broughton — In answer to the question I would say, let it remain as a pasture. I have used the same pasture for thirty-five years, with profit. The original soil is better than any pasture that has ever been broke.

In regard to the blue grass, my friend is correct.

SUGAR FROM AMBER CANE.

READ BEFORE THE AGRICULTURAL CONVENTION BY A. DAVIS, OF GALESVILLE.

Mr. President, Ladies and Gentlemen: Being delegated to prepare a paper on the culture of sugar cane in the northern states, for this convention, and presuming that information is what is desired, I shall proceed at once to give the result of my researches. Not being experienced in this new branch of agriculture, I sought information from men practically engaged in the work, as being the most reliable and satisfactory.

To Mr. Isaac Hedges, of St. Louis, President of the Mississippi Valley Cane Growers' Association, I am particularly indebted for his work on sugar cane, which thoroughly discusses every phase of its culture and manufacture. Persons desiring information can not do better than to send for this book, the price of which is $1.

Mr. A. J. Russell, of Crystal Lake, Ill., vice president of the association, wrote me a gentlemanly letter, inclosing a small sample of sugar made from unripe cane. To Gen. Wm. LeDuc, Commmissioner of Agriculture, I am under obligations for a circular-letter, which no doubt will be sent to any one free on application. Cyrus C. Aldrich, of Morristown, Minn., and C. M. Schwarz, of Edwardsville, Ill., practical growers and manufacturers, have written personal letters containing much valuable information, and besides Mr. Aldrich kindly furnishes samples for

your inspection. Col. Colman, of the St. Louis *Rural World*, sent me a copy of his paper, containing the proceedings of the Mississippi Valley Association, which is of much interest. I have taken your time to recite my authorities, that you may judge of their reliability, and further, justice to them requires a public recognition of their services. The statistics given are as near an average as possible, from all taken together, which, however (with few exceptions), do not vary seriously.

The sugar-producing canes suitable for this climate are common cane and sorghum.

Of corn, there is as yet no preferred variety; field corn appearing to contain about as much saccharine matter as the sweet varieties. The corn should be cut in the "roasting ear," and can be used for feeding stock, or if of the sweet kind, for canning or drying. A crop of turnips or rutabagas can then be raised upon the same ground. Experience will of course teach us which variety is best, should it be largely cultivated for sugar-making purposes, but at present sorghum (which is more productive) seems to have the preference. The term sorghum is commonly used to designate all the northern sugar canes, and the plants embraced by that name came originally from China in Asia, and the Kaffirs in southeast Africa. They were transplanted in France by a Mr. Wray, who was persuaded by the late Horace Greeley to introduce them into this country. There are not less than twenty-five varieties, most of which have unpronounceable names, with which I will not tire your patience, but simply mention the Early Amber, at present most popular and widely known.

The soil that produces with best results is that which is best adapted to corn, provided it is not too low or rich; very rich soil produces very largely but of poor quality. Old soil, while not yielding so well, produces finer flavored results. The presence of sand seems a necessity, while lime is very desirable.

The ground should be prepared as for corn, and cannot be ploughed too deeply. In smoothing, one writer recommends that six rails be woven together with chains, near the ends, and used as a harrow. This, he claims, leaves the soil much looser than the usual way of preparing.

Two pounds of seed per acre seems to be the amount required. Growers claim that northern grown seed ripens earlier and is best for this latitude. The seed should be well soaked in warm water, and may be planted in rows or drills at a depth not to exceed one inch, and the shallower the better. If in rows they should be three and one-half to four feet apart each way; if in drills, the rows should be three and one-half to four feet apart, with four to six inches between each plant. Drill planting seems to have the preference, and it is claimed that rows running east and west stand the best, as the heaviest storms in the summer come from the west. Planting should be done in May, as soon as the ground can be put in good condition. Careful planting is of the utmost importance in securing a good crop. The ground should be carefully worked over as soon as it is possible to discover the growing plant, and afterward the same cultivation as for corn will suffice. A prominent writer does not recommend hilling, and says late cultivation protracts the growth and stimulates the suckers on the upper joints, which is not desirable. Deeply ploughed loose soil, carefully planted seed, and early cultivation are the necessities for a good crop. The cost of cultivation is given from one to five dollars more than that of corn. The harvesting or cutting should commence about September 1st, or as soon as the seed is in the dough, and the crop cut up as expeditiously as possible, to prevent injury by frost.

In regard to stripping there is much discussion — one party demonstrating by actual experiment that unstripped cane produced a higher per cent. of juice of richer quality than stripped. Another contends there is a loss, though doubtful, if enough to pay the cost of stripping. All agree that if unstripped the leaves must be kept in a bright condition, otherwise it will injure the color and flavor of the product. The usual manner is to strip while standing, cut the stalks, and bind them with leaves at both ends in bundles of from thirty to fifty stalks.

The seed heads with about two feet of the cane should be cut off and bound into bundles. The leaves and tops are equal to hay for fodder, and the crushed seed to oats for feed. In case of a hard freeze, the whole crop should be slashed down, leaves on,

butts to the north, and put through the mill with the greatest dispatch. It is said the frost does no harm of itself, but warm weather afterward causes fermentation. After cutting the bundles they should be ricked in the mill-yard, either under cover or in the open air. Placing the butts protects the cane from the sun, and it also should be covered with leaves and tops. It should lie this way for two or three weeks (especially for sugar making), and then be ground. The season for grinding extends from forty-five to sixty days, and even much longer, if the cane be prevented from freezing. The juice must be treated immediately after being expressed, even a few hours' delay being dangerous on account of fermentation. Dumping carts or tiling wagons add greatly to the convenience of handling the crop.

It was my intention to give a brief description of the manufacture of sugar and syrup, but find the process so completely in its infancy, and so many disputed points, that I thought best to leave the investigation to those who contemplate engaging in the business. The Agricultural Department is making strenuous efforts in this direction, and it is announced that important discoveries will be made public in time for the benefit of the coming crop.

I will now attempt to give an estimate of the profit in producing the Early Amber cane for syrup, taking an acre as a basis to compute from. As to the cost of raising, I have simply copied from the Hedges' Book, which is the highest estimate I can find. It is as follows:

Preparation of soil for planting	$2 00
Planting seed	1 00
Working twice with one horse cultivator	2 00
Working twice with one horse plow	2 00
Hoeing and thinning four times	4 00
Stripping blades, one hand four days	4 00
Topping cane, one and one-half days	1 50
Cutting and hauling to mill, one hand and team, three days.	6 00
Use of land	5 00
Total cost	$27 50

A very common, we may say low average yield is 150 gallons per acre, while 340 gallons is mentioned by one correspondent.

The syrup is quoted at wholesale prices of from forty to seventy cents per gallon. Taking 150 gallons (a low yield), at forty cents (the lowest price), we find the product of an acre $60. The usual charge for manufacturing by small mills is one-half, or twenty cents per gallon, equal to $30 per acre. Add the cost of raising as per table, $27.50, and we have $57.50, leaving a balance of $2.50 per acre clear net profit. Let me here say I am not making fancy figures on paper, to entice into a business that will disappoint and cause you loss. I have taken the most unfavorable estimate possible to obtain, and still it pays you well for all your time. Interest at ten per cent. on your land, valued at $50 per acre, and $2.50 per acre clear profit. Charge the same expense to your corn crop and multiply your yield by thirty cents, the present price — say sixty bushels, or $18, and you have a net loss of $9.50 and $12 less than the cane produces. In the table given above, the author manages to show a profit of $29.40, instead of $2.50, as by my calculation, and none of the estimates place the profits at less than $20. One of the most prominent growers says the cane can be delivered at the mill for less than $17, being a profit in our estimation of $13. Another estimate as low as $10, netting $20. I give you these figures that you may judge for yourselves. I take the lowest price named for the syrup, because having dealt somewhat in that article, think it as high a figure as should be placed upon it for large quantities, until further improvements are made in its manufacture. For the producer's own consumption it is worth more intrinsically than can be procured at retail for sixty cents, the only objection being a peculiar taste, which, we predict, with the rapid improvements being made, will soon disappear. The yield of sugar per acre is estimated all the way from 1,000 to 3,000 pounds, so it seems 1,500 pounds ought to be a safe figure. At seven cents, this would give us $105. I can find no estimate of the cost of sugar-making over that of syrup, as that branch is yet hardly more than an experiment, but think it is safe to say a successful one.

From present appearances the sugar crop would be the most profitable, but so much experience is required, that at least one season should be spent syrup-making before the manufacture of

sugar should be undertaken. Our subject is of too much importance and of too broad a nature to be more than glanced over in so short a time. It is already assuming a national character, and our Commissioner of Agriculture predicts that within five or six years the great northwest will produce its own sugars and syrups. Wisconsin is now accredited with the most varied resources of any state in the Union. To copper, iron and lead mines, her great lumber interests, her victories in cheese and butter making, stock raising, crops of fruits, hops, and all of the cereals, let us add the manufacture of pure sugar and syrup. Let us make a good article so cheap and plentiful that acids and other poisonous adulterations will be driven from the market. No state has soil or climate better adapted for good results, and no locality in the state more favored than our own. The discussion of any subject is in vain and of no effect unless conclusions are acted upon. Let our farmers carefully experiment and investigate, and we predict a rich harvest will be the result. Do not act in haste, but plant a small piece of ground, give it your careful attention, and you can ascertain without danger of serious loss, whether the picture is what enthusiasts paint it. Efforts should be made to induce the placing of machinery, and if appearances are not deceptive we will soon enjoy some of the "sweets of life," grown within sight of our own doors, without paying tribute to transportation companies or foreign countries. Regretting lack of time in preparing, and of ability in presenting this matter, I now leave it in your hands, hoping that its importance will prevent its being entirely lost among the many subjects so ably presented to this convention, and that it may be followed with practical results.

Mr. Hatch—I graduated in this thing several years ago. I will say that Gen. Le Duc, the present Commissioner of Agriculture, has brought down the ridicule of the agricultural press of the country for his persistent assertions that there were great resources undeveloped in sorghum. A gentleman in Pennsylvania thought he had the thing in a nut shell, and he compounded something from sulphuric acid, and they thought they had a thing that was going to revolutionize sugar making, and transfer it

from Cuba to Wisconsin. It is Stewart's process, using sulphuric acid. I will say concerning the use of lime water, that while it may assist in removing acids and greenness, it will discolor. The experiments conducted by the Commissioner of Agriculture have resulted in one discovery, that sugar can be made from ripe cane. That is the secret of the whole thing. One gentleman in Illinois made forty-two thousand pounds, and sold it in Chicago for ten cents a pound. In the per cent. of sugar obtained, it was found by the experiments that the Amber cane exceeded that obtained from other cane.

Mr. Sheldon — It does not follow that if the seed is sufficiently ripe to germinate the cane is ripe. We used to ripen our old-fashioned sorghum cane so that the seed would be good to grow the next year.

Mr. Hatch — It seems that the Amber cane has a degree of maturity in it that the others don't possess.

Secretary Bryant — The difference is this. It is the same as that between a great grown boy and a good, solid, plump man. One kind would not produce another. Captain Blakeslee, who represents a district in Sauk county in the legislature, told me within the past week that the sorghum raised in his vicinity had completely driven the syrup business away from him; that they had not sold one single gallon of any kind of molasses, in his store, since they commenced to make sorghum last September. The whole people around there get their sweets from the sorghum. Now we have some sorghum in the other room that was sent here last year. Mr. Orange Judd, the editor of the *American Agriculturist*, was here last summer, and spent several days. He was the first man that brought sorghum seed into this country; he got it from France. They got it from somewhere else, China, probably, and had raised it there, in France, and then it came here. The last importation seems to have had the effect to get more sweet from it, so that we are able to make sugar from it.

Mr. Daniells — The experiments of the Agricultural Department say seeds fully ripe. That is all that is said in regard to the ripeness of the plants. The chemist of the department does not expect that this thing is settled. These are the indications of one

year. They are indications which were looked for, so that it will be well enough, I think, to remember that one series of experiments, while it points towards a fact, does not settle it. So that you would not be absolutely sure that you are going to get what he got.

Mr. Hatch — There is a house that is advertising glucose sugar, I believe at three and a half cents a pound. Those glucose products are largely used for adulteration of almost all the sweets that come to America, except, perhaps, the refined sweets. It is produced from corn and sulphuric acid, and has stood in a similar light with regard to extracted honey by bee-keepers, that oleomargarine has to butter.

Mr. Daniells — Glucose will never be used in sugars, because it doesn't crystallize.

Mr. Hatch — It is used for adulterating syrups mostly. There are instances where they have found remains of corn in kegs purchased.

Mr. Daniells — There is no trouble about buying syrups free from corn syrup. That is, you get glucose in all syrups. It is simply an uncrystallized form of sugar that is in the juice of all sugar cane.

Mr. Sheldon — We will not ask what it is, so that we know that it is good syrup to put on buckwheat cakes and isn't poison. Captain Blakely, of Saint Paul, I guess, talked four hours upon the prospects in Minnesota of sugar manufacture. The point was, whether he was going to succeed in the enterprise of putting up sugar refineries. I didn't want to know that. I wanted to know whether I, on my little farm, was going to succeed in making syrup off of a little piece of my land; whether I could send the syrup to my neighbor and get it ground up, and return a couple of barrels of good sugar. If the largest sugar refinery was started in La Fayette county that the world could produce, it would do me no good. They could charge me seventy-five cents a gallon, no matter if it cost only ten cents. I want an opportunity to make my own syrup and sugar, so that I will know what I am eating.

Mr. Lindley — I have raised sorghum cane twenty-one years,

and have manufactured cane nineteen years. I commenced in 1861 to run a sorghum mill, and have run one ever since.

If you plant the seed without taking any pains with it, the weeds will get ahead of it. For the last few years I have adopted this plan: I put water nearly boiling hot on them two or three times during twenty-four hours, just previous to planting. Then I bury the seed in a bag, in the ground, for another twenty-four hours, and if the ground is moderately warm, that seed will be sprouted. I then mark the ground one way, and take the plow and plow the other way, so that this seed is dropped into moist ground. I have found the best results from that so far as planting cane is concerned. I never failed of having a crop.

Now, another remark about the manufacture. I never used lime water in the manufacture, but for a number of years I have used a little salt in the sap when it is first run into the pan. It makes the scum rise quicker and more of it. It is the scum not being properly taken out that produces this green taste. For years I don't think I had any molasses that had the green taste about it.

I never raised any Early Amber, but I made up considerable, last fall. I think I failed in one particular in making up that cane. I think it needs working in an earlier stage of ripeness than any other cane we have been used to working. Year before last, I made up about twenty-five hundred gallons. I haven't found any difficulty in having a market for it. I live near Mazomanie, and if I had four times as much, I would have a market for it. This year it is fifty cents. I have realized a dollar a gallon.

A voice — How many gallons can you get to an acre?

Mr. Lindley — Our soil is sandy, and don't yield as much as some, but it makes better syrup. I have had one hundred and sixty gallons per acre. I should judge, about a hundred gallons per acre would be the average. My experience has been that the Early Amber does not yield as much, but we haven't had tests sufficient.

A word about this sugar business. Some ten years ago, when we raised the small Black Empire, as it was called, I had almost

whole barrels of sugar from that cane without making any effort to get the sugar. In fact, I never made any effort to get sugar. My impression is, that sugar would go back to molasses under unfavorable circumstances. That is, in a very warm or very damp room. I have made molasses that I dare show with any I have ever seen from the south or anywhere; and many barrels of it. In fact, in Mazomanie they won't have any other molasses. There are merchants that are selling nothing else.

Mr. Daniells — Why don't it bring a better price?

Mr. Lindley — I think one reason of that is the farmers all raise it more or less, and we make it up for them. Of course there isn't any demand for it except just in our own neighborhood, and still it is all sold.

Mr. Daniells — Your neighborhood don't affect the price of syrups. Sugar house syrup sells for seventy-five cents readily.

Mr. Lindley — It has perhaps been our own fault. I have had a dollar and a dollar ten, years back, but we keep lowering. Perhaps it is competition in our own neighborhood. In regard to mills, we have six or eight in our township.

Mr. Davis — The gentleman said that sugar could be made from ripe cane. Does he mean that it cannot be made from unripe cane?

Mr. Hatch — There was a tabular statement made by the department of agriculture showing the results in crystallizable sugar obtained by taking the sorghum in different stages of development; and the greatest per cent. amounting to from fourteen to sixteen per cent. from the juice was obtained in ripe cane, and that it decreased from that backward toward the green, and decreased from that point on after frost.

Mr. Davis — H. A. Russell, of Crystal Lake, Illinois, changed a large fruit canning establishment into a sugar factory, and manufactured two car loads from unripe cane. He sent me a sample of brown sugar. So that it seems sugar can be made from unripe cane.

Mr. Hatch — Yes, but the per cent. is less.

Mr. Davis — If anybody wants to see glucose syrup, I think we can show it to him at the Park Hotel. We have as fine a

looking syrup there as I ever saw. The only thing we can depend on is the house we buy it from. We bought some a year ago for sugar syrup, and by some mistake a jug of it was left in the store, and we found a month or two afterwards it was just like paste; so that there could not have been much sugar in it. I know the factories are increasing everywhere. In Buffalo, N. Y., a suit brought out the price of glucose stocks. At one time it amounted to some fifty or sixty dollars a share, some forty or fifty shares, and at the present time the value is something over two hundred thousand dollars. So it seems there is some profit in making glucose.

Mr. Daniells — If the gentleman will allow me to answer his question, why you cannot make sugar as well from the green cane as from the ripe, I will say it is because in the green cane there are other substances in the juice which must be removed or fermentation sets in, and the sugar is converted into this form of uncrystallizable. It is the nitrogenous matter, the albuminous matter, some acids, etc., that are in the green cane, that prevent obtaining the sugar in its pure form, so that it can be crystallized.

It seems to me in regard to the sugar cane, there is another question that is going to come in; that is in regard to the making of it economically, and I think it will solve itself precisely as mining has solved itself in California, if it shall be proven that this cane can be profitably produced, and that will be that individuals cannot make the cane. In the old system of mining in California, every man worked for himself. Now combinations of capital have come, and a single man without capital cannot work to advantage. In sugar cane you have to go through with certain operations, and if that can be done on a large scale for a much less per cent. than on a small scale, then it will be done on a large scale.

Mr. Lindley — I stated the wholesale price as we sell it to the storekeepers. I believe they are selling it in our neighborhood at from sixty-five to seventy cents.

Mr. Kellogg — I have been informed in regard to the production of sugar by Mr. Russell the past season, that two car loads of sugar they manufactured at Crystal Lake were sold as sam-

ples. I would like to know if there is any gentleman here who knows anything more about it. If those two car loads are scattered all over the country, I don't know why we haven't some here.

Mr. Davis — He wrote me they were sent to Chicago and sold there.

Mr. Daniells — Was it free from its raw sorghum taste?

Mr. Davis — When I first got it I thought I did not taste any of it; afterwards, I thought I did.

Adjourned to 7:30.

Convention met in the assembly chamber of Wisconsin capitol, by request of its honorable members, at 7:30 P. M.

Hon. N. D. Fratt in the chair.

A paper was read by T. H. Glenn, editor of the *Prairie Farmer*, on "Marketing the Products of the Orchard and the Garden."

Mr. Field — I would like to ask Mr. Glenn if he can cite us to a single grower who puts up his fruit in packages of the kinds mentioned, and who ships them to his commission man and says to him, "You may warrant this now, as I say to you it is all good."

Mr. Glenn — I can, sir. I will risk his name. Mr. A. R. Whitney, of Franklin Grove. I presume you know him, because there is hardly a man engaged in fruit growing in the whole northwest but what knows him. Whatever he sends to the market, he always gets the top of the market for, or a little more.

Mr. Field — He is the exception, is he not, rather than the rule?

Mr. Glenn — Oh, yes; he has satisfied himself that there is more money, more profit in sending his fruit and vegetables to market in that way than in any other.

ERRORS IN FARM DAIRYING — THEIR REMEDY.

By F. C. CURTIS, Rocky Run.

The question given me for discussion would seem to embrace all branches of dairying, when, in fact, I claim knowledge only in one branch of dairying, and that is butter making.

There are several prominent errors in making butter which are quite common, easily pointed out, and in the main easily remedied. The greatest obstacle in the way of reform is to get the necessary instruction before those who commit the errors; to get their attention, win their confidence, by showing them that the remedy is less laborious, and the grand result a larger and better product, consequently a much better price is obtained for the surplus than is possible under the old erroneous method of butter making.

The errors of butter making are:

1st. Uncleanliness.

2d. Too much acid in the cream.

3d. Caseine or buttermilk in a decomposed state.

4th. Too much friction in churning and working the butter.

5th. Bad salt and too much of it.

Foul milking stables, impure water, odors from various sources, known and unknown, are errors vital in their consequences, and not generally thought of as of any importance.

Good sweet milk contains one-fourth more sugar than it does of butter; this sugar turns to acid, and if this acid is too much developed before churning, the coveted aroma of good butter is lost.

The first question requiring our attention is milk, from which to make the butter; it is hardly necessary to say that it must be good. That good milk can be had only from cows that are well fed and comfortably provided for in stables in inclement weather. For the present, I propose to take the cows as we have them, and improve their quality, or the quality of their product, by

proper feed and care, leaving the question of a better quality of cows undiscussed in this paper.

I hold that the cows we have are better than we give them credit for; that proper feed and care will greatly improve their quality, and the quantity and quality of their product. To allow a cow to fail in flesh while making butter is error No. 1, and a very grievous one; an error that will be quickly detected by the expert when the butter product is placed upon the market. The better the cow, the more danger of this error, for the reason that her nature works to milk forming, and if her system is not provided with proper nutriment, the result is, first her fat and then her muscle or lean meat is gradually transformed into milk, and the butter from such milk will be deficient in flavor, aroma, texture and color, whatever the season of the year, or however well made. I would not give arbitrary rules how the cow should be kept, what the particular feed or form of shelter should be, simply that it should be good and sufficient, such as our farms produce in abundance, and that almost any one can command with proper diligence and effort.

Having obtained the milk, our next effort is to extract the cream, and right here is where our serious and seemingly insurmountable obstacles appear. There are numerous ways or systems of extracting the cream from milk. Each system has its particular requirements, the main feature of which is temperature, and that particular degree of temperature called for must be regular to produce the best results. The system mainly known and used by farm dairies is the shallow, open setting; usually tin pans holding six and ten quarts each. Where a regular temperature of 62° and a pure atmosphere can be commanded for this system, as much and as good butter can probably be made as by any other system; but our climate hardly furnishes that temperature even for one setting of milk, which is from thirty-six to forty-eight hours duration to complete the rising of the cream. There is not only this difficulty of temperature, but the other requirement of a pure atmosphere can hardly be commanded by the ordinary farm dairy. There is probably no one article or thing so susceptible to take up or absorb cooking or other odors as milk and cream, when exposed to their influence.

If we remove to the cellar, we may, by taking pains, command sixty-two degrees of temperature for a large portion of the year, but for quite a length of time in the hot season the temperature will be too warm, and the milk exposed to ozone in the atmosphere during thunder storms, which prematurely sours the milk, causing loss in quantity and quality of cream. Not only this, but few cellars can be properly cleansed of the taint of stored vegetables, which is very likely to produce a taint in the flavor of the butter. I think I am safe in stating that nine-tenths of the dairy butter made in this state is made under these disadvantages; and though the overtasked women who have the care of this great industry, do their best to remedy the errors incidental to this system of separating the cream from the milk, still the result is, our markets are glutted with poor, low priced butter, much of which is sold for eight or ten cents per pound, and some even less, while the milk from which it it was made was susceptible of having been made into a butter now selling for thirty to thirty-three cents per pound. There are some other errors incidental to this system that I shall pass over for the present, but may revert to them hereafter.

The genius of invention of the present day seems turned towards other systems of raising cream, commonly termed "deep settings," and their number seems to be legion — prominent among which is the Cooley system, which is a tin vessel about eight inches in diameter and about twenty inches deep, filled with milk warm from the cow, covered in a peculiar manner, and entirely submerged in water cooled with ice to about forty degrees temperature. This raises all cream between milkings. This system is highly spoken of by Hons. Hiram Smith and A. A. Boyce, who have used it for over a year past.

There is the vacuum system, now so nearly perfected by the Portage Cream Extractor Company, that seems little doubt that in many respects it will have superior points of excellence. It is claimed that it will take from milk animal odors, and flavors caused by cows feeding upon rutabagas and other objectionable forage. All the deep settings are covered, and shuts out atmospheric influences. I verily believe that milk, cream and butter

sustain more injury by exposure to the atmosphere than by any other one error.

I have tried a great variety of experiments with different kinds of vessels for raising cream, and find that a tin pail, made from two sheets of tin 14 by 21, for the body of the pail, making a pail about nine inches in diameter by twenty-one deep, and the cover to be made the same as a tin pail, only the flange of the same to be about two inches wide, and to have a small tube hole in the center. This, as completed and filled with milk — warm milk from the cow—the cover put on, the flange going well into the milk, the tube hole then corked or plugged up, and set in water from 40° to 45°, raises all the cream in from six to eight hours, and that, too, free from all odors, and free from the effect of oxygen in the atmosphere, prevalent during thunder storms. The cream will be found sweet, and can be easily removed with a teacup or a small dipper, and kept until a sufficient quantity of cream is collected for a churning. At each addition of cream, the cream should be stirred together to produce a uniform degree of acidity, and should be churned in its first or sugar acid. If skimmed sweet upon this plan, and then standing in an atmosphere of 60°, it will be ripe for churning in thirty-six to forty-eight hours.

Those who undertake to use this method of raising cream, or any similar method, must bear in mind that they are using a different method or system from the shallow setting; that it requires a colder temperature — 40 to 45 degrees — and that water, in which to set the vessels containing the milk, is better than air. I want to make this proposition plain, for I consider it very important, not only to describe how to do it just right, but how far a digression may be allowed, and as far as possible explain why and how this result is reached.

Milk holds heat longer than water; heat expands milk, and cold contracts it. Now we will fill such a pail as above described with milk warm from the cow, which will be nearly 98 degrees, or blood heat. We find it weighs about 38 pounds; will place it in iced water, at 40 degrees, and keep the water as near as practicable to that temperature for eight hours, when the cream will be found all risen, and the milk and cream of the temperature of

the water it is standing in, and we will find the milk and cream decreased in volume one-half pint. It seems to me very plain that when we set the pail into the iced water, that the milk near the cold water cooled first, and settled to the bottom; that the warm inner portion rose to the top, causing an upward current in the center, and a downward one on the outer portion of the milk; that with the upward current went the cream, and remained at the top.

I have another theory: that the creamy globules retain heat longer than the watery part of the milk; hence, as cooling takes place, the cold, watery portion shrinks and becomes heavier, while the cream retains its volume and buoys to the top. Be this as it may, such is the result. I have stated that the best results are obtained by this system at a temperature of forty to forty-five degrees, which requires ice. Ice is a very important factor in the manufacture of butter under any system; is very cheaply obtained and preserved for summer use, but when it is not to be commanded, the system I have described will admit of a little warmer temperature. Well and spring water is usually forty-nine degrees, and when open wells are at a reasonable depth, these pails can be lowered into the water and nearly as good results obtained. However, when this practice is followed, four or five inch screw covers should be used in place of the covers previously described. It matters not what vessel contains the water, or where placed; so long as the water does not get warmer than fifty degrees, a fair result will be obtained; but when the vessel containing the water is small in proportion to the quantity of milk placed in it, the water will be found to warm up quickly unless it is often changed, and the result will be spoiled milk in a very short time. Then will come the complaint, "I told you that it would never do to shut up the animal odors in the milk."

I hold that good milk has nothing in it objectionable that it is necessary to get out — that animal heat is not essentially different from other heat, and that that degree of heat is just the temperature desirable to confine, by covering up as described, and placing it in water; is just the mechanical and chemical combination required to produce the result I have claimed. From the various experi-

ments I have tried, I am satisfied that it makes little difference what is the size or shape of the vessels used containing the milk, so long as the principles governing the system are followed, which is mainly to enclose or closely cover warm milk in a tin vessel of a capacity or shape that will admit of cooling to 62 degrees within six hours. If the vessel containing the milk is of a diameter exceeding that which I have stated, and the cooling process not brought to bear soon enough, or of a sufficient degree, decay or rotting will commence in the center of the milk. The patents that are about to be brought out and offered to the public are numerous, and some of them of considerable merit; but a little study and experiment with common quart glass fruit cans, will enable you to form an opinion of your own as to their merit, and as to the correctness of what I have told you.

Fill four cans with warm milk from the cow; put the covers tightly on two of them; submerge one completely in iced water; put the other in the water as deep as the milk; put the cover on the third can, and stand the same in a pail of well water which should be 49 or 50 deg.; put the fourth can in a temperature of air at 62 deg., with cover off; three hours or sooner will satisfy you of the relative advantages of what I call the shutting-off process, or what is termed by others, the deep setting in water. I have occupied more time upon this point than I designed, but the subject is new to many, and the result so at variance with preconceived ideas and startling in their results, that I hope the time has been well expended. I claim for this system, much less labor and a uniform product of first quality of butter, provided the rules given are followed as to raising the cream, and that my plan of making the cream into butter, or some better one, is carried out.

The next point is churning. There are more patents on churns and errors in churning than probably any other subject. I shall not attempt to point them out, only allude to some of the most prominent errors. The old dasher churn makes good butter, but it is hard work to operate it, and it does not churn quite all the cream. The hard and lengthy labor of this kind of churn has turned the inventive genius to a quicker method of churning,

and to some extent they have succeeded, but in many instances to the expense of the quality of the butter. A fast grinding action to the churn should be avoided, for it will most certainly injure the grain of the butter.

There is a class of churns now made that revolve, and have no paddles or inside machinery, depending upon the gravity of the cream for the necessary agitation. These churns churn all the cream, usually within half an hour, which is quick enough to make a first quality of butter. I have used the rectangular churn seven years, and find that it is easily operated, easily cleaned, and when other things are equal, the product is of the best quality.

Cream should be churned in its first or sugar acid at a temperature of 60 degrees in the warm season and 62 degrees in the colder periods of the year. When the particles of butter form about the size of corn or wheat kernels, a peculiar swashing sound is heard; the churning should then be stopped, the buttermilk drawn off into a clean vessel, so that if any of the small particles of butter escape they can be skimmed off and returned to the churn. The churning should not be carried too far, that is, it should not be carried so as to mass the butter. If stopped at the right point, the buttermilk will nearly all drain out, and if water is to be added to rinse out the remaining portion of buttermilk, it percolates the whole mass and completes the removal of the caseine more perfectly than could have been done had the churning been continued too long. I said if water was to be added I had thought this question had been decided, but at the late dairymen's association meeting at Elkhorn, one or two gentlemen advocated the nonwashing theory, and stated that the butter taking the first premium at the late New York Dairy Fair, for Wisconsin dairy butter, was made by that method. I concede the possibility of making first class butter by this method, but I do not concede that it is any better than when made by the washing method, provided the water used is pure.

Professor Arnold says upon this subject: "Butter gathered in the churn always contains more or less buttermilk, which would soon spoil the butter if not removed. There are two ways of removing it. One is by kneading it in water or brine,

and the other by kneading it without water. One is called washing, the other working. The former removes it much more rapidly than the latter. * * * The flavor of butter which has been washed is different from that which has not been washed. The difference between washed and unwashed butter is analogous to the difference between clarified and unclarified sugar. The former consists of pure saccharine matter, the latter of sugar and some albuminous and flavoring matters which were contained in the juice of the cane, mingled with it, which give a flavor in addition to that of sugar. Brown sugar, though less sweet, has *more* flavor than clarified sugar. When unwashed, there is always a little buttermilk and sugar adhering to the butter, that gives it a peculiar flavor in addition to that of pure butter, which many people like when it is new. Washing removes all this foreign matter and leaves only the taste of the butter pure and simple.

The assertion is often made, and many people believe, that water washes out the flavor of the butter, but it only cleanses the butter of the buttermilk sugar and milk acid which may adhere to it, just as clarifying sugar removes from it the foreign matters which modify its true flavor. The flavor of butter consists of fatty matters which do not combine with water at all, and cannot, therefore, be washed away by it. The effect of washing upon the keeping quality of butter depends upon the purity of the water with which the washing is done. If the water contains no foreign matter that will affect the butter, it will keep better for washing the buttermilk out than by working it out. Professor Arnold is the best of authority on all dairy matters, and it does seem to me that his evidence in favor of washing butter is conclusive in favor of the use of water to remove the buttermilk. I have used it freely, but have always been careful to have the water pure.

One of the great errors in farm dairying is the destruction of the grain of the butter, making it an unsightly mass of grease. To attempt to remedy this evil by teaching to work out the buttermilk instead of washing it out would be a much more difficult task to accomplish; not only that, but I am quite positive that

washed butter will keep better and sell better when placed upon the market. One of the gentlemen who advocated the non-washing practice at the Elkhorn convention had butter in competition with mine. I point you to the result.

I will now return to completing the manufacture of the butter. I add water freely, give the churn a few rocking motions and draw off, adding one or two more waters or until the butter is freed from buttermilk. I then add one ounce of Ashton salt, which has been sifted, to the pound; give the churn a few revolutions, which incorporates the salt evenly through the whole body of the butter. One of the great errors of butter-making is the use of common barrel salt, and too much of it. I verily believe I have seen butter for sale that had three ounces of this cheap fertilizer to each pound. The butter now can be removed from the churn, or remain therein until it is desired for working and packing.

I have tried various practices of working the butter, leaving it from six to twenty-four hours, but have finally come to the conclusion that it is best to work and pack it at once.

If the form I have described has been followed, very little working will be found necessary. The washing has removed the buttermilk, and the churn has incorporated the salt, provided the butter was in small particles when the salt was added. The butter bowl commonly used in farm dairies is made of porous wood that absorbs impurities, and is most likely to contain the germ of decay; not only that, but it is very inconvenient in form, requiring considerable strength to hold it while manipulating the butter. When the dairy is small, and a butter worker unnecessary, a tray made of ash, oak, or almost any hard lumber, with three sides, or rather two sides and one end, say fifteen inches wide and two feet long, will be found just the thing. I use a tray of this character, placing in it a few pounds of butter from the churn; flatten it, roll it up and flatten again with the common ladle, and pack it solidly in ash firkins.

In all the handling of the milk, cream or butter, I keep it from the air as much as possible. Butter made as I have described, sells readily in Chicago at thirty cents per pound. If the same

butter was made into rolls in the neatest manner, nicely covered with butter cloth, it would bring about eighteen cents per pound.

I have occupied more time in this paper than I designed, and in conclusion would say, let us strive to retain the honors our enterprising dairymen have won at the late International Dairy Fair. Eternal vigilance will be found as necessary to retain these honors as it is to retain that of liberty.

A voice — How much will the can hold?

Mr. Curtis — About nineteen quarts. That is the best size.

A voice — What is the object of warming it?

Mr. Curtis — That is hard to explain. I think I told you in the paper that the warmth of the milk coming in contact with the cold water produced currents in the milk. You will find by experiment, if you will try it, that the cream rises much better with the tight cover on. I think the reason must be because it retains the heat. I think blood heat is just the degree of heat that we want in the milk to bring about this improved action in raising the cream. Hence if there be either milk or water added, I think it should be of that temperature.

A voice — Is it important that the milk be cooled rapidly?

Mr. Curtis — I think that is what brings about the result. I think the cooling cools the watery portion, and that the cream retains the heat longer. The richer the cream the more bulky it is in proportion to its heft. I think it retains heat longer than the watery portions, and hence it retains its buoyancy. Consequently the quick cooling is undoubtedly desirable.

A voice — What would be the effect of cold water put in instead of warm?

Mr. C.— It would cool your milk when it ought to be warm.

A voice — Do you submerge these cans in water?

Mr. C.— I would not submerge them, because that is patented. You can set it in. If you take two one quart fruit cans filled with milk, submerge one and put the other into the water as high as your milk, and heed the result, I think you will find little difference in the raising of the cream. We want this covered up

so as to economize the heat. There is another peculiarity of this deep setting.. The cream is all sweet, and the cans will be perfectly sweet. They don't require washing oftener than once a week, and I don't know but once a month would do as well.

A voice — Does the butter have to be worked over after it is taken out?

Mr. Curtis — I see no harm in leaving it in twenty-four hours if you like, but I have come to the conclusion that it is just as well or better to work it. You must churn your butter at about sixty to sixty-two degrees temperature when it is done in the manner I represented, and the salt is evenly incorporated through it, and it is just the temperature to nicely work and pack away. And I hold that the sooner you get the butter, and the more securely and perfectly you keep your cream and milk from the atmosphere, the better. Consequently so far as that goes it is better to work it over at once. It requires very little working if you follow the plan that I have given. The buttermilk seems to have gone out of it without any effort, comparatively speaking. It requires very little working. There is no danger of destroying the grain of the butter. Experts in trying butter to determine the quality, after putting in the tryer, almost the first thing is to look at the back of the tryer to see how it looks. That determines whether the grain of the butter has been injured or not. Not only that but there are little particles of brine. That is what they want to see. That is what they will see if you work over your butter as quick as it is churned. They don't want to see a dry butter.

A voice — I would inquire if you don't find difficulty in separating the cream from the milk? Wouldn't he get too much milk?

Mr. Curtis — He would get scarcely any milk with it, but he would have a greater bulk of cream than he would from the milk pans, the old fashioned way. I don't claim that it would make more butter. I believe there is an excess of cream risen here. I think the latter part of the cream that rises is not very rich, and consequently if you do not get it quite all it does not create a loss. Even if I used the old milk pans I would like to get a little milk with it. It churns better.

Mr. Griswold — Can more butter be made from that process than by setting the milk in cans?

Mr. Curtis — I made a trial once and found the result a little in favor of the cans.

Mr. Griswold — I have heard it stated that you could make more butter from using the cans. If that is not the case what is the advantage of this process? Is it only a saving of labor?

Mr. Curtis — It is in a saving of labor and bringing about a uniform process that will shut out these bad odors.

Calls were made for Hon. Hiram Smith, of Sheboygan Falls, who responded as follows:

In regard to raising cream there has been a great change made within the past few years. We were taught that it should be put in an open pan, and if possible the temperature kept to about sixty-two degrees, requiring thirty-six to forty-eight hours; but a process has been discovered by which it can be raised in six hours in its greatest perfection, and always the same. You bring it to the same condition in these deep cans submerged in ice water. Mr. Curtis is afraid of the royalty. I buy what I consider the best if there is a royalty on it. I buy the Cooley can. There is a faucet at the bottom and you turn the faucet and the pans are skimmed. The milk runs out and the cream remains. There is royalty to pay, but where you are doing a good deal of business — forty or fifty cows — the royalty appears less and less every day, and the result is the same or a little better. If the milk is taken from the cow and rapidly cooled, the philosophy is that the milk condenses and becomes heavier, and then it is in its natural state, which is always heavier than the cream. The cream not being affected by the cold as soon as the milk, the milk becomes heavier and sinks to the bottom, sending everything lighter up.

The cream can be raised in three hours, though time is of no importance. It is raised between two milkings, and that is all you care to do. It generally remains in about eleven hours. You simply let in cold water, and as soon as the milk gets as cold as the water, shut off the water, and put in a bushel basket of broken ice to four of these cans. There is nothing

more to do until you want to use a can for the next milking. It requires no special room. It requires no fire. Your wife isn't asking you every few minutes, "How is the fire in the milk room?" You can go to the grocery and whittle dry goods boxes while the cream is rising, and it will be in its greatest perfection when you get back. It saves more than one-half the labor. Its result is uniformly good. I have used this system for over a year and a half, and my butter has brought the top of the market, and it preserves all the aroma of the milk. There is nothing in new, good milk in the least objectionable, any more than in fresh picked strawberries; and the process of making butter under the new plan is just as simple as to mix mortar out of good lime and sand and water.

The result is always as you expect, and there is no secret about it. It doesn't require you to stick your finger in, look wondrous wise, and guess whether the cream is fit to take off or not; but you go and set it, and draw it off at the proper time. It is something that one person can teach another. Under the old method of making butter, it was supposed that here and there one did acquire a tact to get pretty good butter, most of the time. As Mr. Curtis says, there is no use in washing pans. I will add, there is no use in skimming milk, or keeping a fire. If you get rid of keeping a fire, skimming milk, and washing pans, there is three-quarters of butter making work done away with.

There is no doubt that in the course of the year the butter, properly handled, would produce nearly double the amount that any open setting process will produce.

To show that the process of setting in open pans is a by-gone affair, in the recent dairy conventions among the best educated dairymen anywhere, and especially in the International Dairy Fair in New York, not a single open pan was on exhibition. Nobody had anything to sell, because nobody wants to buy them. I would not use them if you gave me a hundred dollars a year.

If the people of Wisconsin, which is one of the very front butter states, would adopt this deep setting system in cold water, they would improve the quality of the butter far beyond anything that has been the case in any process we have had heretofore. I

do not know that there is anything more unless some person wishes to ask some questions.

Mr. Brown — Do you ever find, in turning out the cream, a sediment in the bottom?

Mr. Smith — The pressure is all on the bottom, and what is on the bottom runs out first, and carries out any sediment that may be there.

Mr. Brown — I was talking with a party who told me he had thrown away the faucets and skimmed the cans. This was at a factory where the milk is brought in by different parties.

Mr. Smith — There might be careless milkers. Mud is heavy and will settle.

A voice — What is a man going to do who has one little Jersey cow; she gives rich milk, but not enough to fill a can?

A voice — Set it in a quart can.

Mr. Smith — I would sell that Jersey cow to some of these city fellows and buy an Ayrshire that will fill the can.

Hon. I. C. Sloan, Madison — As new processes are under discussion, I should like to ask the intelligent dairymen present what they know of an article which has been mentioned here which is being sold as a substitute for butter, that is oleomargarine.

I recently saw an article to the effect, briefly, that in 1869 a Frenchman made the discovery that butter was nothing more than the fat of the animal dissolved by its heat, and distributed through the milk; and that by an artificial process that fat could be made into butter of a better quality, as claimed, than any produced from the milk of the cow. After that discovery was made an establishment was started in Paris for the manufacture of this article. It was immediately prohibited by the French Government until the Board of Health of Paris should investigate the subject and see whether the article produced was noxious or innoxious in its use.

After that investigation the French Government not only removed the prohibition from the sale of the article but also excluded from all the hospitals in France the butter which was made in the ordinary way from milk, and substituted as purer and better, oleomargarine. The article further said there were seven

such manufactories in Paris; that in Holland, where a patent had been taken out, there are now seventy such establishments, one or more establishments in New York, and recently it has been established in Chicago, and litigation has sprung up there in regard to the infringement of the patent; but that it is extending very rapidly. It is making its way very rapidly, not only in Europe, but in this country also.

I would be glad to know if any of these gentlemen have seen this article, and whether there is any truth in the statements that it is equal in quality to butter made in the ordinary way.

Mr. Smith — I will say in reply to Mr. Sloan, that I have read the article that he refers to, and had read before in regard to oleomargarine butter, and it is a fact that it is taking the place of ordinary dairy butter; and it is better butter than store packed dairy butter. Nearly all the restaurants and many of the hotels use it almost exclusively in New York now. It was on the table in New York where a large number of dairymen boarded during the International Dairy Fair. The president of the International Dairy Fair deals largely in that article — sells immense quantities of it, and so alarming has it become to dealers that they refuse to buy dairy butter because this rod is held over them. It can be manufactured for twelve or fourteen cents, but it is usually sold for twenty and twenty-two cents, and it prevents old butter dealers from laying in a store of winter butter as they used to do to sell through the winter. That trade has been ruined, and all who make dairy butter, and take it to the stores hereafter, will meet this very difficulty, and they cannot compete with the oleomargarine.

It is better than almost any store in Wisconsin takes in; but it does not come in competition with creamery butter. It is tallow at the best. It is neutral. At that hotel in New York, when there were not less that six judges who had been appointed for dairy purposes, some refused to admit that it was oleomargarine, and it was referred to a gentleman who is the highest authority in dairy matters, and he pronounced it oleomargarine, for the reason that though it was solid and firm and showed as nice as any butter, it was neutral — had no aroma. In making

up nis judgment, he declared that any butter that looked as nice as that, had been good at one time, and when butter ceased to be good, it becomes poor very rapidly. He said this was neither good or bad. It is utter folly for dairymen to undertake to compete in this matter. The law in New York is, that this butter shall be branded oleomargarine butter. They have a little brand about the size of a twenty-five cent piece, with "oleomargarine" around the edge. That is put upon a linen cloth, and the butter is done up in pound or half-pound packages, as the market calls for. It complies with the law, and the consumer never mistrusts but what he is eating butter all the while. It don't give satisfaction to the educated taste and there is no danger of deceiving anybody who is used to eating good creamery butter only a week old. But dairy butter is practically out of the race. You may not all know it, but you will feel the effects of it, if you continue to make ordinary dairy butter.

Mr. Norton — In this improved process do you ever use any coloring matter?

Mr. Smith — Always, because the market demands it. Almost anybody would rather have colored butter than white butter. Ordinary cows make white butter in cold weather.

Mr. Norton — My wife is the best butter maker in La Fayette county, and she is the best looking woman.

Mr. Smith — She didn't get the premium at the state fair, or the International fair.

Mr. Norton — I don't understand that that would decide the question. I was in hopes you would take my word for it. She never used any coloring matter. Her butter is always of a uniform color. She always used the common process of making butter. She never went through the process of hermetically sealing milk when she set it to raise cream. She said it wasn't good to cover milk up tight so that the steam that rose from it would fall back into the milk. I am thankful for the information that we can seal it up and keep it free from odors and dust or anything that may fall around. It is an old notion that it wasn't good to cover the milk closely.

A voice — I would like to inquire if you use the lactimeter? I have used it in buying cows to test the richness of the milk.

Mr. Smith — If you test the milk right from the cow, the lactimeter is honest, and will give a fair definition of the milk. Good milk will stand at a hundred, at ninety degrees temperature.

Sec. Bryant — The errors in farming dairying are many. I want to speak of two. The first great errors that the farmers make, is keeping such awful poor old cows! The remedy is, go to the auction to-morrow and buy some of the fine Short-horn cows to be sold, for they will not only give milk, but when they have done giving milk you can work them up into oleomargarine and more than get your money back. (Laughter.)

There is another great error in dairy farming. Farmers turn their cows out and let them stand and shiver in the cold, running around the haystacks and strawstacks. A cow never should be allowed to stand out in the barn yard, unless you could go and stand out there with your coat off and feel comfortable. They want to be warm as well as you do.

A gentleman asks, what would you do with a creamery if you had only one little *Jersey* cow. The answer is: she gives all cream. Milk it and churn it at once. (Laughter.)

A voice — A lady wishes to know what kind of coloring you use.

Gen. Bryant — Annettoine.

QUESTION BOX.

Does sheep husbandry in Wisconsin require a tax on dogs?

Hiram Smith — In regard to that question, I will say that I am not a very great friend of sheep. I think the people of Wisconsin cannot afford to keep sheep on any good land such as they have in the eastern parts of the state. I don't know how it may be in some portions. The place to keep sheep is in Colorado where land costs nothing, and taxes are nothing. They can get rich at twenty cents a pound while we should grow poor at thirty-five and forty cents. Therefore, I say let the dogs kill them off if people won't stop keeping them.

Mr. Babbitt — I hardly think that we ought to answer that question until the supreme body — the legislature — has decided; for it appears to be the great question that is now agitating their minds, whether they should encourage the dog or the sheep.

Senator Anderson — I think the sheep ought to have some friends in this house. I would like to have a bill introduced to encourage the raising of sheep and discourage the raising of dogs. I am one of those men who believe there is a great deal of land in Wisconsin well adapted to sheep raising and that it pays well to keep sheep. I have kept a good many sheep myself. As a general thing I have made it pay. Some years I do not. A good flock of sheep is as good as a good herd of cows, and in the game of farming, this year I call sheep trumps. Wool is worth fifty cents a pound. Sheep five and a half a hundred in Chicago. There is land in Wisconsin worthless for cultivation, that can be made to yield a good income by keeping sheep upon it. I have always advocated keeping a few sheep on every farm. A few sheep don't require as much care according to their numbers as a large flock does. I think you can make as much money raising first class sheep as any other stock I am acquainted with. Wisconsin is better adapted to raising sheep than is Colorado. I talked with one of our manufacturers who went to Colorado to buy his wool. Two to two and a half pounds is one of their fleeces. I have got some of the yarn made from them. My wife would not knit it at all. It is too coarse. Our fleece are eight to ten pounds. Colorado wool at that time could be bought at twelve to fourteen cents a pound, and our wool was worth thirty.

Of course it is very unpopular among politicians to say any thing against the dog. The owners of dogs are more numerous than the owners of sheep. Wherever they vote to tax dogs two dollars apiece they will be kept at home next year. I always thought that a man too poor to keep a few sheep or a cow should not keep over half a dozen dogs.

Mr. Webster — I have kept sheep since the war. Just before the war I had about four hundred. The dogs have almost ruined some flocks of sheep. They are kept by the kind of men that don't feed them. They are regular renegades. I have kept other stock and nothing has paid me so well as sheep. I have got as high as ninety cents for my wool. I have over four hundred sheep to-day, and I should not trade them for Short-horn cattle, Jerseys, or anything of the kind. In our neighborhood

they have a number of factories, and those who have agreed to furnish milk to these factories now want to get off and buy sheep. There is more money in sheep, they tell me, than cheese. I say to-day, kill the dogs and make each dog pay five dollars tax. (Applause.) It is ruinous to Wisconsin sheep men. And if the legislature passes laws to take off the tax on dogs I will work, against any man hereafter who helps do it. (Applause.)

Hiram Smith — My friend Mr. Anderson calls sheep trumps, and if he had made cheese he would call cows the joker. Now it is said that figures won't lie. I have kept both cows and sheep, and you cannot keep cows with any sort of safety or profit if you keep sheep at the same time. They will eat everything that grows, in a dry time. They gnaw close to the ground. They will spoil any farm they run over, for grass. They eat clear into the roots. Now I said figures won't lie. A few years ago when wool was a dollar a pound, a man that had the same sized farm that I then had — one hundred and thirty acres — kept a little over two hundred sheep. He sold his wool for seven hundred dollars. He felt very proud over it, and he said, "Mr. Smith, how much better have you done than that with your dairy?" It was the latter part of June. Only one-half the dairy season had gone and I had already sold seven hundred and fifty dollars worth of cheese and sold nine hundred dollars worth after that.

Mr. Babbitt — Considering the price of gold, isn't wool to-day higher than has ever been known in the history of America?

Mr. Smith — I think it is. Still, you devote a farm of good land to sheep, and you see what the receipts will be. They will only be half that of cheese and butter well made.

Hon. H. Naber — I come from northern Wisconsin, where we have some seven or eight million acres of land that cannot possibly be converted into dairy farms right away, but nearly all of it will feed a flock of sheep. And the people who have settled in that country are all of them beginning to keep sheep. Not because they would not keep cows, but because they haven't the land for cows.

You will remember that Wausau is about the geographical center of the state of Wisconsin; and if you take a map and look,

you will find that nearly one-half the state of Wisconsin is north of Wausau. Now, settlers coming to that country will find the greatest variety of the various kinds of food that sheep feed upon; and it is generally supposed in the southern part of the state that we have snow six or eight months in the year. I am here to tell you to-night that sheep up there don't require feeding any longer than in the southern part, and may be not so long when your pastures are fed down closely; and you have to feed them down closely. Up in our section, when a flock has fed off one portion of the land we drive them on to another one where the feed is fresh, and they often grow fat in the fall of the year after the snow has begun to fall. Some winters, such as we have had for the last three or four years, the sheep have been outdoors all winter long, and kept in tolerably fair order.

Now I want to say a few words in regard to dogs. Up in our country we have all the animals you find in the woods. Every Indian hunts for his living, and every Indian has from one to half a dozen dogs, and these Indians, as a matter of course, cannot be kept on their reservations, although the government says we must not even cross the Indian reservations. They and their dogs roam the whole country over after deer, and their dogs would just as soon take mutton as deer. It is utterly impossible for any farmer up in our section where the Indian tribes are located, to keep a flock of sheep and protect them against the Indian dogs, unless he has a well trained dog to take care of and protect his farm. You can't do it by any other means. You can also protect yourselves from wolves, lynxes and other animals. For that reason our farmers have unanimously petitioned the legislature to allow us to protect our flocks by our dogs. Right here it may be different, but circumstances alter cases. I was charged by the whole of my constituents to see to it that taxes should be made uniform, if possible; that it was not right to tax a poor settler in the wild woods of the north, who has a few sheep, for keeping a dog. The dog is as much a necessity for the protection of our flocks and families as it would be a danger to your flocks here.

But aside from this, I want to call the attention of the great multitude of farmers living in the southern part of the state of

Wisconsin, to the fact that we have some land in the northern part of the state that will raise just as much wheat to the acre as yours will, and this land is now for sale at government prices; and on such land as this you can raise a flock of sheep.

Mr. Speaker Arnold — I can very well see how one man may be successful in dairying and another man in sheep raising. The idea that ordinary farming will not pay, and that we are compelled to go into dairying in order to live, I do not believe in. I wish to say something in reference to this dog question. The first decision upon the law as originally passed, in reference to dogs, was that dogs were not property, and therefore not liable to taxes; but the courts construed the law as in the nature of a license, and therefore held it to be good. It was fixed so that it was left discretionary with the board of supervisors. As a tax, the courts held it unconstitutional, as it was not uniform throughout the state. I apprehend if we had a law passed authorizing the licensing of dogs, strictly as a license, to be paid previous to the keeping of the dog, instead of as now, after the dog has been kept a year, that it could then be left discretionary with the board of supervisors of every county, and that that might be a constitutional law. I can see the propriety of such a law. In one part of the state they think dogs are useful, and in another they entertain a different opinion.

Mr. Sellers — Being a resident of Wisconsin, I should not like to have the impression go abroad that it is not profitable to raise sheep here. I have been in the habit of buying wool for about eighteen years in my life. I came in contact with farmers in Pennsylvania, Ohio, and largely in Wisconsin. And the farmers universally told me, that were raising sheep, that it was the best stock they could raise to make money from. A prominent farmer in Wisconsin told me, take one year with another, that he could do better with his flock of sheep at twenty-five cents a pound than any other stock he could raise on his farm. I have not been buying wool for ten years, and don't know that the rule holds good; but this I do know, that the farmers raising wool had money to loan, while others had mortgages on their farms.

I do not want this idea to go out among the farmers of Wis-

consin that it is not profitable to raise sheep. Sheep are money at all times. After it dies the fleece is worth something. I think sheep just as profitable as any stock the farmer can raise.

Mr. Boyce—I am glad this dog tax has come up before this convention. I have lived in Dane county, Wisconsin, about thirty-seven years, and I have kept sheep most all that time; and I certainly would not do without sheep as long as I owned ten acres of land. I also keep cows, and live close by as good a cheese factory, probably, as there is in the state. If I had to do without either I should kill off my cows very soon, because the labor of milking and caring for your cows is never taken into account in making up the sum.

I claim if we could get rid of the dogs and the wolves, that you could afford to keep sheep in Wisconsin if you didn't get anything from them but the manure. Now we are compelled to house the sheep over night. I live in the south part of Dane county. I never dare let my sheep be out in the night because I am afraid of the wolves and the dogs. If I could leave my sheep out my farm would be worth enough more to save all the expenses of that flock of sheep.

I would say, pay a bounty of fifty dollars on the wolves, and tax the dogs ten dollars. Get rid of them all at once. Then we have a clear field, and I defy any man to compete with his cows with a flock of good sheep. I have tried both to my satisfaction. Kept them side by side for twenty-five or thirty years.

I can almost tell, as I ride through the country, the man who keeps sheep. His farm is cleaner, his crops are better, he is a more thrifty farmer. Sheep will find enough to live on where a cow will starve to death. Speaking of high priced land not being fit to keep sheep on, the higher the price the more profit there is in sheep.

FEBRUARY 5, 1880.

Convention met at 9 A. M.

N. D. Fratt, President of the State Agricultural Society, in the chair.

QUESTION BOX.

Sec. Bryant — I have been requested to read over one question that was presented yesterday and no answer to it was made.

"*What course shall a young man pursue who has run in debt for a run down farm, so as to improve his farm, support his family, and pay his debts?*"

J. M. Smith — Mr. President, this question was read yesterday, and I was very much annoyed afterwards in thinking it over. I thought that we did not do justice to ourselves, and we did not do justice to the man who asked the question. I do not know who he is, where he is, or what his situation is, but that is a question — and we may disguise the fact as we will — that nine-tenths of the young men of this country have got to solve. They have got to solve it for themselves. It is a question that my father had to solve. When he was a young man he had his father and his mother on his hands. He had a young family on his hands, and a large one at that. He had an old wornout farm on his hands, and he was in debt for all it was worth, and more than it could have been sold for. My father had the misfortune to fail. He told the creditors, "If you will give me the property I will pay the debts." A few men stood by him and bought the property in, and turned it over to him — told him to take his time and pay his debts as soon as he could. That was the question he had to solve: How shall I pay these debts? That happened in a state and at a time when they could lock a man up and put him in jail for debt. I never can think of it without its making my blood fairly boil to think that any state in this Union ever should have had such an infernal law as this. He went to work, and the farm was so poor that he could not possibly support his family on it. And what should he do? How should he pay these debts, support a family and send his children to school? There was no public school in the state at that time. He was one of the first men in the state to commence a system of improvements. He commenced by draining. He had land that was entirely worthless. He commenced experimenting with fertilizers. It was a new thing. It was more than fifty years ago,

and he had very few of the advantages that we have now. He subscribed for the *Albany Cultivator*, the first agricultural paper of the United States that lived. He had to be taunted with being a book farmer. That was about equal to being called an abolitionist in those days. But he went to work, and from having an old worn down, impoverished farm, in the course of years he succeeded in supporting his family, bringing up his children well and paying his debts. To-day he is an old man; but he solved that problem. He has got a good home. He is not a Vanderbilt, but so far as good living and a good comfortable home is concerned, he is just as well off as Mr. Vanderbilt is. And, gentlemen, that is the course his sons have had to pursue. They have had to solve the same problem. And his grandsons have got to solve the same problem for themselves.

I was annoyed a few days ago at a convention I was attending. It was said that we men who attended conventions were above the common grade of farmers — we were men of means, men who could go on and make improvements, and we were holding ourselves above the common class of farmers. But, gentlemen, nearly all of us commenced at the bottom of the ladder. I had to run in debt for my land, and for the improvements I made on it; and I had to pay ten per cent. interest. I am not quite out yet, but I can see through, and I only want a little more time to make myself not rich, but comfortable; and I can walk over the little land that I know I own and know it will take good care of me. I knew when I bought it that I could pay that interest in but one way, and that was to improve the land, let it cost what it would. I must have large crops. My early education, my study of agriculture and my practical experience had taught me how to raise large crops, and I knew that I could raise big crops; and that I could so cultivate my land that I could make big crops the rule and not the exception. And there lies the secret of successful farming. I say to this man, whoever he is, young or old, if he is in debt he must have good big crops, and have them year after year. If he meets hard times, as we have all met them, and cannot pay his debts, I say to him to go to his creditor like an honest man and say to him, "I have met with misfortunes; I

cannot meet these payments to-day." Tell him just how you are situated; tell him why and wherefore; and in nine cases out of ten his creditor will give him time and all the time he wants. Let him pursue a straightforward, honest course — honest with everybody. I believe in the advice that Wolsey in his old age gave to Cromwell; you recollect the line:

"Corruption wins not more than honesty."

And I believe this is true in all our business transactions. Let him go right straight to his creditor and tell him if he cannot pay. I can tell you of a man who ruined his prospects for life by simply refusing to do that.. He was a young man. He wanted help, and went to a friend who had the money and was perfectly willing to help him, and would have helped him from that day to this if it had been necessary. But he says, "Now I want to know a little about how you are situated. I have got the money; I am willing to help you; but I want to know a little how you are situated. Tell me about your business." He got up on his dignity and refused to tell him anything about it. "If you cannot let me have the money on simply my character and saying that I want it, I won't take it at all." The result was that he failed in a very short time, and has been working at day labor from that day to this.

I mention this simply to show the necessity of frankness with your creditors. It is not necessary to proclaim it to the world but that, and the necessity of going to work and improving your farm year after year, will make you succeed. No matter if you don't make any money this year or next, it is bound to come in the end. As I said before, I know all about it. I have been through the mill and haven't got clear out yet.

Mr. Anderson — I was very much interested, and perhaps all of you who have heard Mr. Smith's history of himself and his ancestors; but I take it for granted what this young man wants to know isn't the history of my affairs or anybody else's, but how to take a poor farm of eighty or one hundred and twenty, or one hundred and sixty acres of land, that is run down; how shall he crop it to improve that land. If he can raise good crops, all right. I advise every person to raise good crops; but can you raise good crops from poor land? Now I am a great advocate

of clover. I would say, plow your land and put it into condition as quickly as possible. Seed it down to clover as quickly as you can. If I couldn't get wheat and oats and seed it with that, seed it with clover alone. I wouldn't plow down the first crop of clover. I would make hay out of it. The second crop I would make seed out of. Then I would plow as soon as the seed was taken off, and either put into clover immediately again or put in corn if it is fit to raise corn. When he sows clover seed sow plaster also. Land must be very poor that will not raise clover if it is well plastered. If it is clay land it is better with plaster. On my land, which I call rich corn prairie land, plaster shows well with clover. When I came to my farm it was said to be run down. I have lived in Lancaster county, Pennsylvania, where land has been farmed from before the revolutionary war, and it was not run down. I sent eighteen bushels of clover seed to Wisconsin before I moved here, to be sowed on that one farm, some twenty-five years ago. The man who was on the farm wanted to know what I wanted to do. Said I, "Seed it down and pasture it off. Let it stand there until I get it plowed up." He thought I was crazy. Everybody sowed wheat those times. I found that that land produced the first year that I plowed it up, a very fine crop of corn; and the next year an average of twenty-eight bushels of wheat to the acre. That was the run down land.

I say clover and pasture, and the oftener you get into clover the better, until you get the land up to producing some crop, whatever you wish — corn, oats or barley. I would not like to recommend spring wheat any more in this country, because the richer the land the worse the chinch bugs are.

Judge Bryant said the other night, "Insure the b uilding heavily, set fire to them and run off." I would not do that. I would cultivate the land. I sow plaster at the time I sow the seed, and again after I get the first crop.

A voice — What was the soil?

Mr. Anderson — My soil was dark colored prairie soil.

J. M. Smith — May I ask you a question. Suppose the young man has not the means to live. Now your plan is all right — there is no doubt of that; but we presume that the young man,

whoever he may be, is poor; he hadn't the means to live; he cannot break it up in that way at once. He may do it by piecemeal along.

Mr. Anderson — The young man has not told us he has no means of living. He only asked how he shall improve that piece of land. If you ask how he shall make a living if he hasn't any money, I say work for somebody else or borrow some money. If he is an honest, upright man he will have some credit. A man's credit is frequently worth as much as his capital. I endorse everything Mr. Smith says about borrowing money and running in debt.

A voice — May I enquire how much plaster you sow to the acre?

Mr. Anderson — I would think a hundred pounds to the acre is sufficient. Some say more. If the land is rich enough I would not sow plaster at all.

Hon. Sat. Clark — I have had some little observation in relation to this matter, and I suppose it would not be improper for me to tell what interest I had in the matter to start with, before I tell about the improvement of the soil.

I always had a great deal of trouble with my servant girls. After they lived with me about six months they would get married. I once met a girl on the street that I thought no man would touch with a pair of tongs. I collared her and took her home. She stayed with us a little over two years, and she came in one Sunday and said she was going to get married. (Laughter.) I said, "To whom?" "I don't know his name," she said, "I just saw him a little while ago. He is in the kitchen; he asked me to marry him. He says he has got eighty acres of land about six miles from here. He has got a yoke of oxen, a cabin, and eleven acres broken up and under cultivation." Ricke married him and I took a good deal of interest in them. I went over to the Kaskaskia one day and saw them taking out fish (*bullheads*) for manure. I don't want my veracity impeached. This man told me he hauled away eight hundred and thirty wagon loads of bullheads, let them freeze, and piled them up and covered them with straw. In the spring, as soon as he could plow, he took a subsoil

plow and borrowed some extra teams and plowed the furrows very deep and filled them with bullheads. There was a space in the center where he had no bullheads. He planted it to corn six feet apart and in hills. And he called me to look at that corn when it was growing. Everywhere that there were bullheads it stood eleven feet high, and where there wasn't any it stood about four to four and a half, and it was as nice a piece of corn as ever was grown in the American bottoms in Illinois. He got over a hundred bushels of shelled corn per acre. But that was not the best part of it. While the corn was growing, in the month of August he sowed it to winter wheat, right in among the corn. He never harvested his corn until it came winter and the ground was frozen, and he then went in with a sled and scooped off the ears, leaving the stalks standing; cut them down in the spring and left them on the ground, and he got fifty-two bushels of winter wheat to the acre off that land. Now I tell you bullheads make good manure. Unfortunately for us there is a dam below us now in the river, and we can't get any more bullheads.

Mr. Phillips — I indorse everything that Mr. Anderson said. I believe that is the correct plan. If the young man has means that he can go on and do that, I think he is all right if he will follow up that plan, if his land is run down. If he has not means to do that, he had better let it go for what it will fetch, and strike out west and get him a homestead; because there are openings for young men there.

As far as Mr. Clark's story is concerned, where we stop in this city we have a little society among ourselves, some eight or ten of us stopping at one place, and in order to accommodate some of our members we passed this resolution there among ourselves, and it might be extended to this whole body. We resolved not to dispute or question any story that any one tells.

Mr. Hatch —.I apprehend that the gentleman who asked this question asked it in earnest, and I do not feel like trifling with it. I believe it represents the condition of a great many. Now if the only hope for a man in such a condition is in the improvement of the soil and in improved crops, or in a bullhead pond, it may not

strike that young man's fancy as being applicable to himself. I have been in such circumstances, and have worked out, and the main element of success was a persistent following of my business; having but one business and attending to that, and believing in the old saying of Solomon, "Seest thou a man diligent in his business he shall sit among kings;" believing that those who earnestly and continually work in their professions, striving to become adepts at it, will be honored. I know this to be true. I never speculate. It took one of the best years of my life to learn that one lesson. Don't buy anything because you expect unusual returns from it without any investment. Make liberal investments in your business. If you have nothing to sell you can have nothing to pay your debts with, and no man is so far from market as he who has nothing to sell. Whenever I made an investment I considered that my creditors had an interest in that investment. I never considered myself at liberty to invest in lottery tickets, to buy stocks or anything of that nature whatever. I considered that every dollar invested was a dollar invested for my creditors as well as myself. I did not even consider my old cow my own. I always looked upon her as part and parcel of my creditors' assets until I got her paid for. And I tell you it was a relief. Now, how shall we improve ourselves? how shall we pay our debts? is the question this man wants to know. Now, how shall we make improvements? Mr. Anderson has struck the keynote and Mr. Smith has struck the keynote, when they say improve by the use of good culture; get good crops by good management; get good crops by fertilizing the soil; and there is no cheaper fertilizer in the world than clover — clover and plaster. Let us avoid speculative movements. Don't let us get hop fever, sorghum fever, bee fever, but develop the resources of the farm according to the circumstances in which we are situated. If there is an inaccessible side-hill not tillable, look then to pasturage, look to sheep husbandry, look to dairy stock growing, rearing of colts, rearing of calves, growing of grain. Always remember that what has been done can be done again.

Mr. Babbitt — It seems to me if that young man would make up his mind positively that he had got to lose about three years,

and live largely on faith, and press that upon his creditors, and plow up as much land as he possibly could, sow it to clover, no matter how much he wants the hay, when it is up as large as he is satisfied he can get it, and in the best condition to plow under, plow it under, trusting in God.

The next season let him sow that same land to buckwheat. Undoubtedly it would furnish him a crop of about thirty bushels to the acre the next year. Let him remember that he has still got to have faith — a good deal of it. Let him when it is in the best condition to plow under, plow that under. Then let him put in his wheat, and if he don't get over thirty bushels to the acre then I will concede that there is no benefit whatever in that kind of farming. I give you the experience, gentlemen, of one of the best men you have in your body, — a man that you have listened to with the greatest pleasure — Mr. J. W. Wood.

Mr. Clark — I do not want to be misapprehended. A gentleman said that we could not cultivate a farm and improve the land by bullhead stories. I only wanted to demonstrate that the land must be manured. For ten years after I first moved into Dodge county bullheads were used for manure in the whole eastern part of our county. Hundreds of men were seen every day at the river taking away bullheads for manure. You must improve the land to get any good out of it. I of course attempted to get a little amusement out of the story, but I told it just as it was.

Mr. Webster — I have been a farmer and my plan from the first was to have a mixed husbandry. I found it paid to seed down with clover. I sent to Milwaukee and bought two bushels, and paid twenty dollars for the two bushels. It was tremendously high, but I had twenty dollars and I thought I would invest. I sowed that seed, and then I found that I needed something else, and sowed plaster; and by manuring, and keeping sheep, and rotation of crops, I find that my land to-day is richer than when I broke it up, I think. The greatest trouble has been for two or three years that I could not raise any wheat. My land was too rich. Clover and plaster will fetch up any land than I ever saw in our vicinity. I would recommend that above everything else.

We haven't got manure enough. We cannot manure when we have got three or four hundred acres, but clover and plaster will do every time.

THE FALLACY OF FARMERS TRAVELING IN OLD RUTS.

BY HIRAM SMITH, SHEBOYGAN FALLS.

The mode and manner of doing nearly all kinds of business are changing so gradually from day to day, that their full significance is not fully realized by the casual observer. But looking back fifty years, and comparing any leading branch of human industry with the present mode of doing the same, we are at once convinced of the great change. The improvements in mechanical, commercial, financial and agriculture enterprises has been rapid. In travel and the transportation of freight, nearly three-fourths of the time and expense are saved. In commercial exchanges large fees are saved and much idle capital utilized. In mechanical industries, the improvements in our favor are almost beyond computation; also in the art of printing, and the means of transmitting intelligence among the people by the use of daily papers. The magnetic telegraph and the telephone read like a fairy tale. But the department of agriculture lags far behind all other enterprises. It is true that a large class of farmers receive much valuable aid from the introduction of labor-saving machinery, and a few farmers receive liberal returns from improved methods of farming, and in turning their attention and employing their energies in the production of such articles as are favored by natural advantages and light competition, and in making their productions conform to the changing demands of the markets. Contrast this small class of thrifty farmers, quick to see and utilize improvements, with that larger class that are blindly traveling in the old ruts made by their fathers and grandfathers. Let the observer go through any county in this state, upon any road, and he will see that three-fourths of the farmers pursue the old and wasteful method of throwing the manure out of the

windows, there to be drenched and wasted under their eyes until autumn, disfiguring and injuring the barn; and when hauled upon the land it is of little value, producing ordinarily not much over thirty bushels of corn, when, if the same manure had been hauled direct from the stable as fast as made, and put upon the corn land, it would have been a great saving of work, would have doubled its value, and its benefits would have been received one year in advance of the old method. The observer will also notice one or two colts that usually run all over the farm, and frequently neighbors' farms, breaking down fences and letting other stock into the growing crops. They also keep a few sheep. The colts and the sheep will eat all the grass that grows in a dry time, to the serious injury of all other stock; and generally trying to raise wheat, that of late years has been about equally divided between the farmer, the chinch bug and the weevil. This class of rut farmers keep a few cows to shiver in cold barns during the winter, and to vainly contend with the colts and sheep for their share of the grass in summer. These cows, so kept, prove to their owners that dairying don't pay. Many of these farmers when building a barn, will build with a cellar stable, because, tracing the rut back, they find that their father had one. Nine-tenths of these stables are as unfit for cows as the "black hole" is for prisoners in the house of correction in Milwaukee. These cellar stables are the most successful contrivances of ancient or modern times to secure a villainous atmosphere, and add one-half to the work of doing chores, and also add worse than useless expense to the building. Such a barn in these days of horse forks is as unnecessary as to buy a pair of snuffers with a kerosene lamp. I have no fears of personally offending any of this class of farmers, for they scarcely ever attend an agricultural convention, as they consider such conventions only a "ring" to cheat the mass of farmers. They pursue the antidiluvian method of making their butter after the orthodox fashion of setting in shallow, open pans in the pantry or kitchen, trying to keep it warm in winter and cool in summer, and miserably fail in both cases; but they generally succeed in making it rancid in summer and bitter in winter, and seldom fail to secure the lowest price

when sold, because buyers are so partial. It is said that figures will not lie. I took the pains a short time ago to gather statistics from four of these "rut farmers," whose farms agregate 420 acres, and their entire receipts from sales were less than $2,500; while a dairy farm of about 210 acres produces annually $2,800 to $3,000. I have no doubt the comparison would hold good throughout the state.

These two different systems of farming determine the question of poverty or competence. The time is rapidly approaching when Wisconsin farmers will have to resort to every available means to increase the value of their productions. We are menaced on the north and west with a large area of rich, cheap land, that will soon send its products into our markets at prices far below the cost of production here, at all consistent with the present price of Wisconsin farms. Just now we are protected by what we please to call railroad extortions on freights; but when forty-five cent wheat from Dakota and $25 four-year-old steers from Kansas, are freighted to Chicago as cheap as they now are from Chicago to New York, we shall have to adopt some more productive farming than that now prevailing among the majority of farmers. The great question of the way, manner and price for transporting western products to the sea-board, when fully settled on some uniform basis, will largely determine the character of farming in different localities. It is evident that those who have the facilities and knowledge to engage in raising such products as produce the greatest value, with the least cost for transportation, will stand the best chance for success.

Every indication seems to point out that Wisconsin farmers can safely engage in the manufacture of butter and cheese, and they will be almost certain to receive present advantage and future profit, mainly for the reason that freight tariffs are not burdensome, compared with other products, and we have the world for a market, and no competition west of us at present; and no locality between us and the sea-board possessing the same natural advantages, of cheap food and a rich and fertile soil, with a climate admirably adapted to the production of the very best butter and cheese, as a recent competition at the International Dairy Fair in

New York fully demonstrated. If a majority of Wisconsin farmers could be made to see the fallacy of longer traveling in the old rut, and would take possession of advantages now within their reach, it would add largely to their individual profit, increase the taxable property of the state, and permanently increase its revenue, and could not fail to be a credit to their intelligence, and a guarantee of future prosperity.

Mr. Olds — I think Mr. Smith did not tell us what he would recommend as the best plan for stables.

Mr. Hiram Smith — I thought it might be inferred that they must be on top of the ground. It is as easy, as all farmers know, to raise hay with a horse fork twenty-four feet as twelve feet. The old idea of building a cellar stable was because we had to pitch up hay by hand; but now to build our barns on level ground and hoist our hay with a fork, as we all do, it makes no perceptible difference whether you hoist it twenty-four feet or twelve; and the stable can be on a level where it can be properly ventilated both below and above, and a good healthy atmosphere is always obtained.

The style of stables differ. Some like box stables and some stalls. I think stanchions for the cows, generally three feet apart, the most economical and most readily taken care of.

Mr. Anderson — I would like to ask how high he would build his barn. I will state that my barn is just such an one as he has been denouncing. My barn is forty feet high. I have a good deal of room for hay up stairs. I think in this cold climate my cattle are more comfortable in a basement barn.

Mr. Field — You have good ventilation, haven't you?

Mr. Anderson — Very good ventilation. Over the horse stable there are hay funnels that run into the feed rooms below. I hold that in this cold climate such a barn is very comfortable for stock; particularly young stock. And I think it is a little more comfortable for my cows to lie on a bed of straw than on a plank floor, and have their heads tied with stanchions. I think stanchions are very uncomfortable. I should dislike very much to have a hole in the head board for my head.

Mr. Hiram Smith — How would you like to have a rope around your neck? (Laughter.)

Mr. Anderson — If it was long enough for me to lie around and reach around and rub myself, all right. Not so bad as the hole in the head board.

Mr. Hiram Smith — About forty years ago about such an argument was advanced in favor of keeping ice through the summer. It must be down cellar; and all through Pennsylvania, in the older sections of the country, they have their ice-houses in a bank; but the modern plan has been to have the ice up chamber and bring the cool air down where they want it, instead of trying to force it the other way.

There is no difficulty in making a barn on top of the ground that never freezes at all. I keep my roots under the barn floor and it never freezes at all. Simply seal outside and inside with straw. I do not have the stable twelve feet between joists, but about eight feet, and room overhead for all the cattle will eat. Twenty-four feet at the eaves, with stables each side, and forty feet wide, will hold all the hay that cattle stabled therein will eat, which is all you want; and you need only to extend the length of your barn to get all the room you want. The wall is the most expensive part of the building.

There is another important point that you want to observe. In hauling your manure you should have one door to drive in and the other to drive out. And building into a bank, it is difficult to do so, and it is hardly to be supposed that stables will be built wide enough to turn around in. You can get it as warm as cattle ever ought to stand in, and it is much more easily ventilated, for the ventilation wants to be below as well as above, and it is very difficult to get a good atmosphere in cellar stables, as the floors are generally laid as low as possible and no ventilation under the floor. That gives a poisonous air, and no chance for it to escape.

Mr. Olds — Upon that point I want to draw out the impossibility of having a common stable constructed so that the air will be pure. I have had an opportunity from experience with the Cooley creamery to prove that matter to my own satisfaction.

I wanted to have it brought out last night in the discussion of the advantages of one creamery over another. Now those that have used the Cooley creamery know that that is an important point claimed by that invention; that any odors or taint that the milk may have taken in from any source, will pass out of it into the water during the time the cans stand in the water.

If it would be considered in order, I would like to speak of the test that has come through my experience. My creamery-tank was constructed so that the water flows in from the pump, and through that into an overflow tube for the supply of my stock in the yard; but during the first cold weather that pipe froze up so that when it became necessary to change the water, or to renew it, it had to be dipped out by hand. Being so cold that ice formed on top of this tank, we supposed there would be no necessity of any change in the water being made. There is the temperature all right, but after three or four days we discovered a bad smell arising from that water, and we at once changed it — dipped it out. We found in continuing that plan of dipping it out, that it was necessary to be done once in two or three days at furthest, or else there would be a bad odor very plainly arising from the water, without any cause that I could know of, only what came from the milk.

Since having that test I have come to the conclusion that the milk received the odor from the stable during milking, or before it was brought to the creamery, and it was therefore imparted to the water; and that led me to the conclusion that I must make a revolution in my stable. We had never discovered any defect in our butter or milk in the former method of making butter.

Mr. Webster — I have had some experience in these barn cellars that our friend speaks of. I do not approve of them at all unless they are well ventilated. For sheep I would not recommend them; though in all my travels around this state, where there is a new barn now building, if there is a bank or side hill, it is the universal practice to build a basement for cattle, horses and sheep; and in Walworth and Racine counties, I find that the sheep men there are building these basements for their sheep ex-

pressly; but for my part I would rather have a sheep barn built on top of the ground; but for cattle, with a good ventilation, it is different.

The first barn I built was some twenty years ago, and I made one mistake, and that was, I thought we could go no higher than twelve feet; but I think of building another, and instead of having twelve foot posts, have twenty-four or twenty-six foot posts. I have a barn that I built expressly for sheep, built on top of the ground, and the first story is made of stone. I have windows so that there is a free current of air through whenever I want it. When I want to shut up the barn I can do so. When I built my first barn we did not know anything about hay forks, and I thought it was as high as I wanted to pitch hay.

I find in talking with farmers in Wisconsin that it is practiced universally, and they all approve of it, to build a basement, but have it well ventilated. We get more room for the size of the roof.

Now one word on wool, and I sit down. The advantage in raising wool is that we can send it off cheaper than we can our butter and cheese.

Mr. Seymour — I wish to ask the gentleman who spoke about using the Cooley creamery, and running the water from that to his water tank for his cattle, if he does not think that the water, which has become so foul from the effects of the odors in the milk, is not fit to be run into his water tank for his cattle to drink, or his cows particularly.

Mr. Olds — When the whole thing is in working condition there is no perceptible bad odor.

Mr. Hazeman — I was not present when the paper was read. There appears to be some talk in regard to basement stables for cows. I have been looking around with a view of repairing my barns and getting them in the best shape I can. From what observations I have made I should favor building stables on top of the ground. I do not like a basement. Dairymen, most of them, keep their cows in a barn through the winter most of the time, especially in cold weather. When they are more comfortable in the barn than out in the yard they want to be in the barn. And

a basement is more difficult to ventilate and dry out than a stable on top of the ground. It is like a cellar in winter time — always damp.

A voice — Do you include all cattle?

Mr. Hazeman — I am talking about cows.

Mr. Hiram Smith — If he doesn't, I do!

Mr. Hazeman — If you want to live in a cellar, go there and live. I prefer to be on top of the ground. I don't want my cows in a cellar. I want them where it is dry and wholesome.

Mr. Olds — I will simply state that the basement to my barn is wholly above ground. The only defect that I can discover is the lack of drainage.

SHORT-HORNED CATTLE.

BY COL. J. W. JUDY, TALLULA, ILLINOIS.

The subject upon which I propose to speak for a few minutes is of great interest to the people. I have got simply a few headings, as the preachers used to say, for second, third, etc. I have no written speech.

I feel honored to have the privilege of speaking before this intelligent audience, because when I get into a convention of the farmers of a great state like Wisconsin, I know that I am among the men who read and think, and as a matter of course I feel more delicacy in speaking than I would in some other crowd.

This is an age of progress. Probably there are few men who are up with the times. One great emergency follows another to such an extent that it is impossible for us to keep up with them. I am not an old man, but I can remember very well, gentlemen, when we used to use the old Berkshire plow. Probably there are young men in this room who do not know what that was. I have reaped many a day with a common hand sickle. I have used a flail to thresh the grain, and then hauled it to market in wagons. We traveled when we did not go horseback, in the old stage coaches, and plodded along twenty or thirty miles a day and thought we were doing well.

What do we see now? We see nicely burnished plows on wheels, going right along and turning up your sod or your soil to the depth of six, eight or ten inches, as you desire. You see a beautiful machine going over the wheat field, a man driving two horses, and the binder taking it off better than any man can do it. You see my friend J. I. Case's beautiful machine that he exhibits at our fairs and elsewhere, a thing of beauty and a joy forever, run by steam or by horse power. What a beautiful arrangement it makes, and how beautifully it prepares the grain for the mill or for the market.

Now you are ready to say, "what does that have to do with cattle?" When I think about improvements my mind runs away, and there is no telling where I may go. My friend Mr. Smith said that progress was very slow in agriculture. I am willing to admit it, but improvements in agricultural machinery have fairly outstripped some other of the interests and the great interest of our country — "Cattle."

We start from the east and travel to the entire west. You don't see any of the implements of husbandry that I first spoke of, but you will see thousands and tens of thousands of cattle, just the kind methinks that old Jacob raised when he was tending Laban's herd, and when he was serving his last seven years for Rachel (for he had been fooling with a cross-eyed woman), and there was a time then that cattle did seem to increase faster than any other time in the world's history. He put his rods in the watering places, you know, that he might get a certain type. I don't think there was ever so successful a man in type breeding on earth as Jacob, for he bred them all exactly alike, and there are lots of them in this country to-day.

Now, gentlemen, while you are making grand improvements in your agriculture in different ways, which is all right, and just as it should be, at the same time you are very much lacking, and are not doing your duty in the way of getting improved breeds of cattle.

There are in the United States, as near as we can ascertain, about sixty million cattle. In what I may say in regard to Shorthorns, I want you to understand that I have no feeling against

any other cattle, and I don't think there should be any enmity between those that are raising them. There is plenty of room for all the different breeds, and I am only sorry that we have not got more of each and every thoroughbred kind. We ought to have. Of the sixty million cattle, there are about sixty thousand pure bred cattle in the United States. Now we want to ascertain, if we can, the difference between thoroughbreds and the native animal. The end and aim of the people is to make money. That is our business as far as the things of this earth are concerned. Of course we are all working for the better country beyond, and we don't want to forget that as we go along. But so far as the things of this world are concerned, money is the grand end and aim, and it is right and legitimate; and if God has given a man the capacity to make money, and he doesn't improve that talent, he will be held accountable in the great day of judgment; and he ought to be.

Some men say the thoroughbreds are not going to be of any account very much longer because there are so many of them; but if all cattle were thoroughbreds there would be the same number there is now; and in this country they would be worth enough to pay the government debt, over and above what the cattle are worth to-day. That is a big item, gentlemen, but it is even so.

Now we come to the practical part of it. It is not necessary to say anything more about Short-horns. I have been met with this question since I came to this town. Men say, "I am not able to buy a Short-horn." Any man who has got one hundred and sixty acres is too poor to be without one. I don't mean up where the man talked about, among the Indians, for I did not know that there was any such country in Wisconsin as that. "Did you ever think whether or not you were able to buy a cow worth twenty-five dollars?" I say to the man who will tell me he is not able to buy Short-horns. "Oh, yes, I am able to buy a cow worth twenty-five dollars." What does she produce? She produces another cow worth twenty-five dollars, or a steer that will probably be worth twenty-five or thirty dollars. Now if you buy a Short-horn that is worth one hundred and fifty or

two hundred dollars, what does she produce? Another Short-horn worth two hundred or two hundred and fifty dollars. Isn't that the plainest proposition in the world. There are no horned animals on the earth that live longer than Short-horns. If you can buy a mean thing, as a matter of course you can buy a good thing. Did any man ever think that he was not capable of buying a bushel of wheat that would raise three, four, five or six more bushels to the acre, than the common wheat we used to sow? We want the best of everything, and ought to have it; and in a country like this, and among intelligent people like this, we cannot very well afford to do without it.

Now I will give you a little illustration of what a single Short-horn can do. This is the case. It has been done. It can be done again. Mr. John W. Jones, of Stewartville, Clinton county, Missouri, purchased in 1868 his first Short-horn heifer for one hundred dollars. At his sale of Short-horns in 1877 at St Joe, Missouri, he made the following statement to myself and others. It is also a matter of record in some of the papers: Up to this time I have sold seven bulls for $1,065. At that sale he sold twenty-two females for $3,910, and five bulls for $635. Now, gentlemen, I want you to remember that was in 1877, and there are no gilt-edged prices or anything about this. This was a Nannie Williams or a Ruby — a very well bred and good animal; but it shows what any man can do. In nine years and a half he had as the produce of one heifer, forty-two head, with eight heifers to drop calves within the next six months; or in other words, making fifty-four animals in ten years from the single cow. Now any man can do that. He might not always do it, but with anything like the same care and attention he could. A gentleman here remarked that it was necessary for a man to give his time and attention to whatever he was engaged in. There is nothing that is truer than that in the world. God said away back a long time ago, that man "shall eat bread by the sweat of his face." It is the same thing to-day; and if we could only instill into our business the principle of being honest, upright and just, and then let people learn that in order to succeed they must give whatever they are engaged in their time and attention, there would be no failures in all this country.

Now I am going to tell you of a case that probably would not be developed every time. Not likely to be. In 1863 John G. Taylor, who lived at Hillstown, Illinois, went to Kentucky, and John M. Palmer, who was a stalwart then and a democrat now, was on one side, and Morgan was on the other, and as a matter of course Short-horns were worth as much then as they were some other time. He sent down there and told them to buy the best Short-horn yearling heifer that could be bought for a hundred dollars. He bought a Lonan heifer. That was September, 1863. Taylor was killed about 1873. His boys conducted the business and the cattle were sold except the bulls, which had been sold, and what were sold from that cow produced over eleven thousand dollars; making a thousand dollars a year almost for a hundred dollar investment.

There is no man living to-day, if he will buy a good Short-horn or two, and take them on to his farm, give them the necessary care and attention, but what can make more money for the investment, I will venture to say, than in any other business he can engage in, notwithstanding my friend Smith has made lots of money out of milk, cheese and butter. But there is a heap of work attached to dairying — a great deal more than there is to beef raising. Still you must give both your time and attention.

Now I will direct your attention more particularly to the principal work. Do you know that in this country of ours there are a great many people, and beef is one of the grand interests of the farming part of our country? And as long as there are people on the earth we will have to have beef. In fact, the time has come when a great many people are not as favorable to pork as they used to be. And there is no hotel that is properly kept in this country but has good beef on its table. Consequently there will always be a great demand for beef. Another demand has sprung up very recently, and it is making a wonderful mark in the products of our country and the interests of our country. In October, 1875, Tim Eastman, who once lived near Madison, in the same township as does Gen. Bryant, shipped the first lot of cattle for beef purposes to Liverpool, from New York. The next year there was a few thousand dollars worth shipped. In 1877 still

more — quite an increase. In 1878 there was about $55,000 worth shipped, and a heavy embargo laid upon it all the time. The consequence was that much of the beef went in quarters that otherwise would have gone on foot. This year just past we have shipped over twelve million dollars worth of cattle to the eastern market. Now what kind of cattle does it take to go to the market? How does the market run in Chicago? Beef steers from 3 1-2 to 5 3-4 cents. What kind of cattle are bringing 4 and 4 1-2 cents to-day? Native four-year-olds that will weigh twelve, thirteen or fourteen hundred pounds. What kind are bringing 5 to 5 3-4? You will find cattle coming three years old, some past three years old, grade cattle, that are bought for export purposes. Can a man afford to take a scalawag steer and raise him until he is three or four years old, and get forty, fifty or sixty dollars, as the case may be, when he ought to have a good grade for which he could get seventy-five or a hundred?

I will give you a little illustration in regard to what can be done in the way of raising steers. We have a little farm — or at least my wife has, and I live with her — and we sold in 1875 eighty head of two-year-old steers at $97.50 per head, the first of March. They were cattle that would be three years old in the spring. We sold them a little later than this in the season. We called them two years old. Two months later we sold fifty-six natives, three years old, for $71.40. We had $26.10 more for the two year olds, or those coming three years old, than those coming four years old, and fed the latter two months longer.

A voice — How about the amount that each class were fed?

Col. Judy — From the time we got the three-year-olds they were treated exactly the same way. We had had them about a year. Now there was $26.10 difference in the selling price. A year's keep added, $24 (you can't afford to keep a steer for less), would make $50.40 difference, and that is a very good price for any man to sell a common steer for. That is the profit, if you please.

Gen. Gillette sold, in December last, two hundred and fifty head of three year olds, past, to Nelson Morris, averaging about nineteen hundred pounds, for $5.50 per hundred. Another gen-

tleman, Malcomb Hubel, who lives in Menard county, sold to Mr. Heath, of Toledo, two hundred and fifty-six head of three year old steers in December, 1879, averaging eighteen hundred and fifty pounds, for which he received $5.50 at home.

The other day, as I came along, there was a gentleman coming up who had bought three car loads in our county. They weighed 1,550 pounds, and he paid $5.00 per hundred weight. He told me he could buy the same aged cattle for from $3.00 to $3.75 and $4.00, weighing about 1,200 or 1,250 pounds. You see what a wonderful difference there is.

Now I will give you a little bit of report from Mr. Pliny Nichols, who is one of the best posted men in Iowa.

Mr. Pliny Nichols, a breeder well known in the west, made a statement in April, 1877, of what results might be attained by good handling of common, grade, and thoroughbred cattle, respectively. Mr. N.'s prices are those of the Chicago market in 1877. The "results" are as follows: Common cattle, 3½ years, average 1,400 pounds, @ 4½ cents per lb., $63; grades, ½ blood cattle, 3 years, average 1,600 pounds, @ 5¼ cents, $84; thoroughbred cattle, 3 years, average 1,800 pounds, @ 6 cents, $108. Hence, with the same handling, the difference in price of grades over common cattle would be $21, and of thoroughbred over common cattle, $45. But by the common method of bad handling he estimates that we only get an average of $40 per head for our cattle, turned at three to five years. According to the biennial census of Iowa in 1875, there were 2,075,243 head of cattle in the state. Supposing that one-fifth, or say 400,000, were "turned" or sold each year, Mr. Nichols shows what would be gained by the state through the substitution of grades and thoroughbred, and the proper handling of them, over common cattle badly handled:

400,000 common cattle, common handling, at $40	$16,000,000
400,000 common cattle, good handling, at $63	25,200,000
400,000 grades, ½ bloods, good handling, at $84	33,600,000
400,000 thoroughbreds, good handling, at $108	43,200,000
Profit of good over bad handling, common cattle	8,800,000
Profit of grades over common cattle, good handling	8,400,000
Profit of thoroughbreds over common cattle, good handling	18,000,000
Profit of thoroughbreds, with good handling, over common cattle, as commonly handled	27,200,000

"Granting," says Mr. Nichols, "that, as now handled, common cattle pay expenses, the difference, as shown above, would be mostly net profit; making a net annual profit of over $20,000,000 to the farmers, and consequently to the state of Iowa; a profit sufficient to soon wipe out the mortgages on our real estate, and make us independent and prosperous beyond calculation."

Now, gentlemen, these are things that can be done and ought to be done. And in order to demonstrate what I have said to you, please go over this afternoon and bid on the animals that are going to be sold. Now, gentlemen, you want to have cattle that are profitable for you to raise. You ought to take good agricultural papers, that will tell you how to manage and manipulate and all this kind of thing, and what the effect of various crops will be, and so on. And by the way, there sits my friend Mr. Glenn, who is the representative of the old *Prairie Farmer*, one of the best papers in the world. I say nothing against anybody else's paper. It comes from the best state to-day in America. We have the *National Live Stock Journal*, which is the paper of the nation — the paper of the world; and you will get from that all the stock gossip, and you will get items in every paper that you get worth much more than the paper costs a year. I have no interest in any of these papers, but I recommend that you supply yourself with them; and there is nothing that agricultural fairs and associations could do better than to give premiums for that kind of papers.

By the way, I see Eastman sitting over there. He will let you have the *National Live Stock Journal* for $2.15 a year, and clubs at more reasonable rates.

Mr. Hiram Smith — I would like to ask the gentleman the proper method of treating these cattle that sell for five dollars and a half a hundred the first six months.

Col. Judy — I will tell you how we treat ours. We are not in a dairy region. We gave got a number of cows on our farm, and only use what milk and butter we want for the family. Consequently the first four or five months our calves get plenty of milk.

Mr. Hiram Smith — My object in asking the question was

that if there is any more money to be made in raising Shorthorns than dairy cattle, of course we as Wisconsin farmers ought to embrace it. It is well to figure on these matters, and see if we can safely make a change. We have learned to-day that a three-year old steer, having had the proceeds of a cow three years, will sell for five or five and one-half cents a pound. It costs as much to keep a growing yearling steer as to keep a dairy cow, and I think a little more. It costs a little more to keep a two year old, and still more to keep a three year old of these heavy steers that will sell for ninety dollars. Now what does it cost a dairyman to change his business and go to raising steers for beef? Dairymen know very well — those that have been in the business a long time — that the average proceeds of a cow is from forty to fifty dollars. A good many are ashamed that it does not go over fifty dollars a cow. Here, then, are the avails of three years put into a four year old steer, and you get eighty dollars for the steer, and you miss getting one hundred and fifty dollars for the proceeds of your butter. That is about the result of changing the business.

Mr. Glenn — Take the dairy cattle of the country through Wisconsin; I would like to know if they yield that profit that you speak of for the year.

Mr. Hiram Smith — No, sir; but I would ask if the steers through the country will average ninety dollars? [Laughter and applause.]

This is an important question, and I am glad it has come up, and it needs a thorough discussion. It is an important matter for the people of Wisconsin to change from one important branch to another.

Now, then, about the general results. Let us look at the price of land where four year old steers are raised. Look at the price of land where the majority of dairy products are raised. In Herkimer county and Oneida county, New York, nearly all the land that has for forty or fifty years been devoted to the dairy interest is worth one hundred and fifty dollars an acre. Down in Egypt, I suppose, they would hardly get fifty. Now there is some practical reason why this condition of things exists. It is the avails of

the proceeds that determines the price of the land — of the net proceeds. Now, then, I admit that if he puts his face westward, his argument is a good one. Take the beef upon land where beef can be produced at a profit. That is not in Wisconsin. We have too sharp competition. People in northern Texas and Kansas can beat us to death.

Take, for instance, a farm anywhere in Wisconsin, assessed, we will say, eight thousand dollars, and the cattle, team and tools two thousand, netting in the aggregate assessment ten thousand dollars. The farmer is living on the proceeds of the increase of this two thousand dollars worth of other property. His land is a fixture. Now you take the assessment in Kansas, Colorado, northern Texas, and how would the result of the assessment be there? He would be assessed ten thousand dollars, we will say, if that was his capital, and what does it consist of? It would be about two thousand dollars for the homestead, tools and implements, and eight thousand dollars worth of cattle. This man at the west, then, is living upon the avails and increase and growth of eight thousand dollars, and we blindly try to run competition against him with our two thousand dollars worth of cattle.

That is the condition of things exactly. Producing dairy products has been sustained upon land worth one hundred and fifty dollars an acre, and we are protected by the organizations of those that rule the market upon these products upon high priced land. To put our land in Wisconsin, worth sixty to seventy dollars an acre, to producing beef would be ruinous at once. The receipts from land would be worth one-half less than the receipts from the dairy. For instance, a man has a two hundred acre farm. He can keep fifty cows, and the receipts will be three thousand dollars. Now let him turn his attention to raising beef cattle. He will have twenty-five cows we will say; perhaps twenty-five yearlings, twenty-five two year olds, and if he sells them at three, he has got seventy-five head of cattle on his farm. He has got only twenty-five to sell, and the twenty-five steers won't bring as much as the proceeds of the dairy. But I have overestimated it. He can't start in with twenty-five cows. He must start in with about eighteen or twenty, if he keeps all his cattle on his farm.

Of course if a man can buy and speculate, that is another thing. I have no doubt a great deal of money has been made by selling high priced stock, but the question is, will the farm produce enough so that the receipts will equal the receipts from the dairy? I take the ground that the sales of the steers would not equal the sales from the dairy, the feed being about the same. It looks to me like a plain case.

Col. Judy — I would like to answer some of the objections if I can intelligently. These are matters of vital importance to this people. We are all interested in it, and if Short-horns are not a good thing, men ought not to have them. If they are a good thing, they ought to have them.

I readily agree with my friend Mr. Smith, that he cannot begin to compete with the common cattle of this country, as far as beef is concerned, with these men on the plains, but fortunately there has been a market opened recently that requires just the kind of cattle that we on this land of ours are capable of raising; and instead of having two hundred head of cattle, as our people used to in Illinois, we will only have two car loads, or thirty head, and put them off at thirty months old weighing sixteen hundred pounds each, and almost every bit of that after the first year made on a cheap feed — blue grass, timothy and clover — and then you have got it all right, and if you can't make some money out of it I am terribly fooled. Our people do it in doing just as I have indicated. Those that were feeding sometimes hundreds are now feeding only a few car loads. They keep their land in grass, and the consequence is their land is improving very rapidly. This new market gives us a different class of customers, and it requires a different kind of beef to supply it. If you attended the fat stock shows in Chicago the last two years you saw yearlings sell for twenty-six dollars per head. They were twenty months old. Gen. Gillette's cattle that were there were not two years old, but they weighed over sixteen hundred pounds. Of course they were a little better kept than ordinary. What he has done any man can do.

Now another thing in regard to the cow business. You charge the steers up right straight along until they are two and a half or

three years old. How much milk do you get out of an animal before it gets to be two and a half or three years old?

Mr. Hiram Smith — Charge for the product of the farm. Keep all you can on two hundred acres. You have fifteen cows, fifteen yearlings, fifteen two-year-olds, and fifteen three-year-olds. Can you keep any more than that on two hundred acres?

Colonel Judy — Yes, sir. I can on mine. I have got a piece of land of ninety acres that three years in succession, six months of the year, I ran from ninety-four to a hundred head of cattle. They did well and fattened. Now, mind you, that will not do every time, but that did it. It was freshly sowed the second year with red clover and timothy.

A voice — How old?

Colonel Judy — They were two and three years old.

A voice — Summer and winter?

Colonel Judy — No, sir. I didn't say that.

Hiram Smith — I am talking about keeping cattle a year.

Colonel Judy — I will tell you what we allowed; two acres to the animal. That will take them well through. That is about the allowance that our men make.

Hiram Smith — There is no record of any such good farming.

Col. Judy — Well, make one.

Hiram Smith — We have no such record, that two acres will keep an animal. It comes near three. Now, on common Wisconsin land sixty head of cattle to two hundred acres would be heavy. Selling fifteen each year, even at a hundred dollars a head, he gets fifteen hundred dollars as the avails of his farm. Now, then, a dairyman that would keep fifty cows upon such a farm as that, that would come out with fifteen hundred dollars after his hired help was paid, would not think he had done any great things. Therefore, I say we can't make the change. A two hundred acre farm, with fifty cows well kept and intelligently managed, would produce three thousand dollars.

Col. Judy — How much hired help would a man require to take care of the cattle?

Hiram Smith — Five hired men in the summer and two hired men in the winter.

Col. Judy — In the other system would he not need hired help?

Hiram Smith — I should think so. I don't know as cattle would clean out their stables and cut their own feed.

Col. Judy — These cattle never saw the inside of a stable.

Hiram Smith — They would hardly fetch ninety dollars in the northern part of Wisconsin if they never had seen a stable. You would have hides enough to make a stable. We are talking about things as they exist in this country. If we are preaching doctrine that is not adapted to this latitude we had better quit it.

Mr. Eastman — There seems to be one thing that has been forgotten in this discussion. That is in regard to the young animals, the bulls, that are sold before they are a year old. The Messrs. Winslow, of Kankakee, make butter right along and sell their bulls at from five hundred to a thousand dollars. They have over a hundred head of Short-horns.

A voice — Were the bulls raised on skimmed milk?

Mr. Eastman — Yes, sir. Bulls that took the premium at the State Fair in Illinois.

Col. Judy — These are facts that he is stating to you, as far as the rearing of these cattle are concerned. They have the finest cattle to-day in the United States. They milk their cows right through, and feed their calves skimmed milk and give them a little other feed, and sell their calves for a good price.

Different men have their different modes of managing their business, as you see dairymen have. The great principle that we want to come down to, is attention to the business we are in. Some men might succeed much better at a dairy than they would at raising Short-horns. A man who was inclined to be lazy would do a great deal better with Short-horns. You can get along with a little less care than with the dairy interest. The dairy keeps you pretty close to your business. It is a nice business. I wouldn't want any man to change who was satisfied he could do better at it.

Mr. Porter, Waukesha county — I rather like this meeting. It is a kind of a go-as-you-please affair. A little about buildings, a little about barns, a little about sheep, a little about bulls, and now we are hearing a great deal about cattle.

I wouldn't give a cent for a man that had not some interest in his own business, and if he was to get up in this convention or any other convention and tell me that my business was a great deal better than his, I should think he was either a fool or greatly mistaken in his own business. One of the two must be certain. I know we all of us have an idea, especially if we are living as we ought to live, that our business is the very best one. But in case we tell the truth at all times about a successful business, nine-tenths of the men will set it down we lie. I have for the last ten years, I believe, withheld the fact that I have never sold a wether for fifteen years for less than ten dollars; and I wonder if some people don't think now that I am lying?

Colonel Judy — I don't think any such thing.

Mr. Porter — Some of my wethers were in my orchard, and I was looking among them. They were very nice, I thought. Two farmers were riding along, and one of them says to the other: "Bennett, what do you think of them?" "Why, I think the man that owns them has got more money than he has brains." Now I took these thirty-two wethers and I sold them for three hundred and twenty-two dollars. And I told Mr. Bennett one day when I was coming from Milwaukee that I had sold those wethers, the owner of which he thought had more money than brains, for three hundred and twenty-two dollars, and I had the money in my pocket. "Well," said he, "they cost you four hundred dollars to raise." Said he, "that is just what I mean." And I believe the man was honest, from the very fact that he has no better stock to-day than he had then; and he never will have as long as he lives, from the very fact that he believes he is just right.

Now, there is just where it is. He is selling his sheep for two dollars and two and a half, and insists he is right. If the man had persuaded me that I had better sell wethers for two dollars and a half, I should think that I had greatly mistaken my calling, for I think I have struck oil. And I will stand by it, and when it fails me, I will let the people know.

Now, I can tell you I have never been very successful in the dairy, from the fact that I never milked a cow in my life. There is just all there is about it.

A good smart German can fool me nine times in a day about such business. But in fatting steers and in fatting sheep and looking after stock generally, he can't fool me once a year. Therefore I have the advantage of him. He would have the advantage the other way. In one way, Mr. Smith, of Sheboygan Falls, has got the advantage. He knows when his cows are paying him, and he would be foolish to trade with me. If he were to take my Short-horns and my large sheep, and I was to take his cows and dairy business, we would both be beat.

I like a good steer, but the way it has been figured is all wrong. For years previous to the last four or five years, I would sometimes go into the market and buy up fifty steers, and I would get them very likely for twenty-two dollars apiece, and when I have come to sell them in the spring of the year they have brought me fifty-five dollars. I knew when they were just right; but I can only tell when butter is right when I put it on my bread.

Now that is exactly all there is about it. If we have got a business that is paying us, let us stick to it.

I know a few years ago I was considered a pretty smart kind of a fellow, especially by my wife and my own family. Now when I talk about things some think I ain't so smart. At our state fair two years ago, a gentleman, after I had been talking sheep to him, who didn't agree with me exactly about the premium, said to me, "You are an old fool." Then he came back again in a little while and said, "Mr. Porter, I have to apologize." Said I, "I don't know that it needs any apology." "Well," said he, "You are not an old fool; your an old fogy." [Laughter.] I said, "You're mending it mightily. I would just as leave be an old fool as as an old fogy; I scarcely know the difference." Now that was a friend of mine. I have known him nearly from a boy.

Col. Judy — What blood of sheep were yours?

Mr. Porter — Cotswold.

Hiram Smith — I want to take back a little I said. I figured these steers at about seventy-five dollars. The gentleman says he bought them at twenty-two.

Col. Judy — They were not the kind that we are raising. They were the Colorado and Kansas fellows.

Mr. Porter — These were miscellaneous steers that I was buying — dairy cow steers. [Laughter.]

Col. Judy — I don't think you ever got a dairyman's cow's steer up to fifty-five dollars.

Mr. Hazeman — I am a dairyman myself. When we are talking about dairy steers, dairymen don't raise any steers in Wisconsin. They cannot afford to. There are some isolated cases that far exceed the average; but the discussion was aimed at the average farmer; and the average dairyman in Wisconsin cannot afford to change his business for raising beef, under our present circumstances. If you want to take a single cow, or pick out a quantity of them, we can find plenty of instances where they come to more than your high priced beef will. Your president has a cow at Green Bay that he made three hundred and seventy-one pounds of butter from in one season. In addition to that, he says he sold a calf at thirty dollars. This would pay for a pretty good steer, wouldn't it?

A gentleman says he lets the calf run with the cow the first year. When he weans his calf, he has used up seventy-five dollars worth of milk, if he has got a good cow. If he hasn't got a good one that is another story.

Mr. Phillips — I have either got hold of the wrong end of this story, or a great many in the audience have. I fail to discover in Col. Judy's remarks where he advises any man to leave dairying, sheep growing, or any other branch of business, for his particular business. The point he aimed at was, if you are going to keep dairy cows, keep the best instead of scrubs. If you are going to keep sheep, keep the best instead of scrubs. If you are going to raise beef for the market, get the very best cattle you can, and get the very biggest price.

HOW WE FARMED IN WISCONSIN FORTY YEARS AGO.

By Hon. SAT. CLARK, Horicon.

Perhaps I know less about farming than any man in this room; but I received a programme from the secretary in which I see that

I was announced to tell the convention how we farmed it forty years ago.

I am sorry to see that one gentleman doubts what another says about his business. I don't think it is courteous. I am too courteous to doubt the word of any gentleman when he is talking about what he knows better than I do. I believe everything I have heard here. Ordinarily on *political* occasions I speak with a great deal of confidence, because I believe I know more of what I am talking than the audience. Some have said, with a good deal of *impudence* as well as confidence, and I guess they are right about that. But when I am talking to people of farming, all of whom I know know more about it than I do, I have lost all my impudence. I don't claim to be able to enlighten anybody on this floor, but perhaps that was not the intention.

I came to Wisconsin fifty-two years ago, and I have seen it grow up to be a great agricultural state. The farming when I came here was done by Indians. I got an idea from an old Indian which, while I didn't follow it at the time, I have since discovered was true, and scientific men have written that it is true. I discovered that they planted their potatoes in different soil every year, but that for hundreds of years they said they planted their corn in the same hill, and I know that they did it for a great many years, because I saw them, and before I could speak the language I wondered very much at it. Finally one day I said to an old Indian, "Why in the world don't you plant your corn sometimes in one place and sometimes in another?" Said he: "Don't you know that the longer you plant corn in one hill the better the ground becomes?" I said: I don't know that; I can't believe that." He says: "Corn derives more nourishment from the rain and air than from the soil, and if you don't cut the stalks the soil gets better and better every year." Now I see some scientific men say that is so, and I believe, from my own experience, that the cultivation of corn on the same land year after year don't injure it unless you cut up the stalks.

A voice — It don't injure if you cut the stalks.

Mr. Clark — I think it does.

I was a sutler in the army for seventeen years after I first came

here. I was a kind of pet of Gen. Jackson's, and he appointed me sutler at Fort Winnebago. I didn't know anything about farming. Unfortunately, I quarreled with the commanding officer, and as he wouldn't fight I had to resign or be dismissed, and I had nothing to do but go on to my farm. I bought a section of land at Green Lake. I don't think there is a better section of land. It had every natural advantage. The farm was a good one, but I was the poorest farmer in the world. I determined to go there and make my living. I had my father and mother and five sisters to take care of, and I was obliged to take them on the farm. That was in 1841 or 1842. I wrote to some members of congress and got some patent office reports, and studied them some to see what I had to do when I first went, for I had not the most distant idea. I want to say here, that in giving my experience, I am giving the experience of those men who surrounded me. When I first went there, there were but two farms there. I ascertained that it was necessary first to break up the ground. So when I went on my farm, I took eight yoke of oxen and two pairs of horses and a plow — a wooden molding board, which was the best one I could get at that time; but during the winter I went and had a breaking plow made, and the next season I broke up thirty-two acres in the spring and put in crops, and during the summer I broke up a hundred acres that I sowed to winter wheat.

Before I went there, I happened to be down at Louisville, Ky. I went down to see Mr. Clay, of Kentucky, who was living then; and I told him I was going farming, and he made me a present of two pigs. If it had not been for those pigs, I could not have subsisted while I was on my farm.

I sent to Ohio by a man named Nelson, who was going down for some cattle, for two Short-horn heifers and a Devon bull calf. At that time almost everybody worked oxen, and Devon cattle made the very best working oxen. Indeed I raised some steers myself, while I was on my farm, that never allowed a pair of horses to pass them on the road, and I could plow three acres a day with them without any trouble at all. But I had very hard work to get along. I was about as hard as iron. For labor, no-

body could have been better fitted than myself. I had been an Indian trader for seventeen years, and I had been in the woods with a pack on my back nearly all the time. When night came, I laid down and went to sleep. If it was in the snow, it made no difference to me. And I never weighed over one hundred and forty-nine in all that time. Hard labor agreed with me, and I could do as much as any man I ever had on my farm. I raised a hundred acres of wheat the first year, and got 3,950 bushels. That was a first-class year. Emigration was just coming into the country and filling it up, and I was able to sell my wheat at my barn for a dollar a bushel.

A voice — I would ask you how you threshed that wheat at that time?

Mr. Clark — I threshed about two thousand bushels of it with a flail. The rest of it a man came along with a thresher — cylinder, without any separator. I threshed it, and cleaned it up on the barn floor with a fanning mill. The greatest trouble I had was to get it ready for seed as fast as the farmers wanted it; but the Almighty did a great deal for me; the soil was good and the climate was good, and the season was good.

The next year, I raised on the same ground 3,650 bushels — plowed it right up as soon as I took the wheat off, and sowed it again — and was able to dispose of that to emigrants coming into the country. They wanted bread and they wanted seed, and they had to have it. After that I was never able to sell any wheat at a profit. To go into the dairy business was impossible, because we had no means of transporting our products to market. My neighbors, a great many of them, were obliged, of course, to sell their grain somewhere, and they used to haul it to Milwaukee. We had in the winter time the worst prairie road for snow drifts you ever heard of, but in the woods the road was good. In the summer season, the road was almost impassable in the woods, and very good on the prairie. There was no season of the year when we really had a good road to Milwaukee. To take wheat a hundred miles in wagons to Milwaukee, and get forty or fifty cents a bushel for it, didn't pay very well. I have known a great many of my neighbors to go to Milwaukee

with a load of wheat, and return without a cent. The expense took the whole. I once sold a man a thousand bushels of good white winter wheat for twenty-five cents a bushel, and he made money. He had six yoke of oxen; he hauled it to Milwaukee a hundred bushels at a load, and hauled out five or six thousand weight of goods for merchants around in the country for which he got a dollar a hundred; and he said that the profit on the wheat, over and above what he paid me, more than paid his expenses; because he never stopped at any house. The country was open and he always found land that was not occupied, and he camped on that land.

It did not cost as much to raise a bushel of wheat at that time as it does now. It didn't cost as much to raise anything as it does now. A great disadvantage that we labored under at that time was that we had no means of transportation, and the land was almost worthless for farming purposes, for grain raising; and of course for dairy purposes also. I made what money I made on my farm after the second year, entirely out of hogs. I had a great many acres of burr oak openings where hogs lived very cheaply, and I sold them at a very high price. I often had twenty-five dollars apiece for four months old pigs. I think my friend Mr. Hazen is aquainted with Mr. Osborne, who is a farmer near Ripon. I sold him a pig once for which I think he gave me about forty dollars. I tried to get him to do some breaking for me which I would have paid forty dollars for, cheerfully, but he said he had more than he could do. He happened to go out to the pen and see a litter of pigs there by my old sow which I got from Mr. Clay. I brought those two pigs in a stage from Ashland to Louisville and from there by steamer, and took them home to Fort Winnebago, and when I went on my farm I took them with me. He wanted to know what I would take for that pig. I told him it was not for sale. The sow was a Cheshire. The boar was a Berkshire. They were as fine pigs as ever were in the world; I never saw a finer animal in my life, and never saw a picture of one that was finer. He says, "I will break that land for that pig." I says, "That will do." And he did.

Before railroads were built to Ripon, a man came to me to buy

eighty acres of land. I had more land than I wanted. I mention this to show that the great disadvantage we labored under was that we had no means to get our products to market. The roads were so shameful all this time between our place and Milwaukee that it was almost impossible to haul a load. He wanted to buy eighty acres of land. I told him he could have it for six dollars an acre. He said, "I will give you five." I said, "You shan't have it." I had purchased the land at the land sale for $1.25 an acre. That was in 1856. In 1857 the railroad was completed to Ripon, and in the fall of the year I sold the same land for thirty-two dollars and a half an acre. That was because we had the means of sending our produce to market. I had at the time the railroad was completed to Ripon, over three thousand bushels of wheat in my barn that I could not sell at any price at all; and I sold it to Mr. Shepard in Ripon as soon as the railroad began to carry our wheat, for eighty-two cents a bushel. We labored under greater disadvantages for want of the means of transportation, than from any other cause whatever.

I kept an exact account of the wheat raised on that hundred acres the second year, and it cost me less than twenty cents a bushel to raise it. And it was all cut with a cradle, and I raked and bound one-half of it myself. I had a young Englishman who raked and bound the other half. We had two cradlers, and we followed them until the wheat was cut. That is very hard work. I know that now a reaper will start out and cut the grain, half a dozen men will follow and bind without raking. Consequently the farmers don't have to work near as hard now as we did at that time. The threshing of my grain after this man came into the neighborhood with his cylinder, cost three cents a bushel. We cleaned it up afterwards rainy days and Sundays. (Laughter.) I had to board him and his men. The farmers all about the country were situated precisely as I was, only once in a while I found a man who was a little more pious than I was.

I recollect on one occasion I had about fifty acres of wheat out, and it was in good condition to stack; and I got some extra men and teams, and one Sunday morning I commenced to put it in stack. A neighbor of mine, who was a Methodist, came along

and scolded me about it; he said that I never would be able to get any wheat out of those stacks. Something terrible would happen. After I got it pretty much all into the stacks, that night there came a rain, and it lasted about five days. All his grain grew in the shock. And I made up my mind that the Almighty intended we on the frontier should take care of our produce. As Col. Judy says, if a man is engaged in any business, attend to his business, and do it with all his might. I thought I had better get my grain in when it was fit to put in, and I did so.

Farming got to be such very poor business after a while that I turned agriculturist. (Laughter.) Gov. Ludington said just now as he was going out that he was an agriculturist. Some of you would like to know the difference between an agriculturist and a farmer. A farmer lives on his farm and makes it support him and his family. An agriculturist works very hard at some other branch of business, and spends every cent he can raise on his farm. That was my case.

For the last seven years that I was on my farm, I was practicing law; and my business was worth about twelve hundred dollars a year. I managed with that business to pay my taxes, and it was pretty tough to do that. So I concluded after a while, that I would leave the farm; besides I had fallen among thieves. My neighbors who settled about me in the same school-district, were all from northern Indiana, and as one old man said, "I made a fortune without any education, and I guess my children can do the same." They determined if they had any school, that a girl must teach for a dollar a week, and board around the neighborhood. Of course we could not get a girl who would do that who was competent to teach my children. The first year I was clerk myself and hired a very competent teacher, boarded her without charge, and gave her every cent of money there was in the treasury. The next time I got one vote for clerk. That was Bill Dakin's, and Bill Dakin got one vote for director. That was mine. He paid taxes on sixteen hundred acres of land, and I paid taxes on over six hundred acres; these other fellows on about eighty acres apiece. We couldn't have a school, and I

made up my mind to leave. So I moved away to where I am now, and for the chief reason to send my children to school.

Now, Mr. President, I believe I have said all about the manner we used to farm it forty years ago that is necessary for me to say. There are a great many people here to-day who were here nearly forty years ago, and indeed I have seen some, and conversed with them; and all over this state the same difficulty occurred — that of a want of facilities to get their products to market. Since the days of railroads, and during the prosperous times, except the time of the panic, farmers all over this state have really done very well, if they attended to their business.

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2 P. M.

Convention met in the Senate Chamber by the courtesy of the Honorable the Senate of Wisconsin.

J. M. Smith, President of the State Horticultural Society, in the chair.

AFTER THE SEED TIME, THE HARVEST.

By MRS. A. A. ARNOLD, GALESVILLE, WIS.

When the sky has put off its cold gray color and assumed the cheerful hue of azure; when the air is filled with the melody of hundreds of winged songsters, returned to their northern home; when all nature, released from her icy fetters, and habited in the lovely green of the spring time, rejoices in the warm sunlight, the husbandman goes forth with his plow to mellow the soil and make it a fit receptacle for the tiny seeds. He is watchful that it be in proper condition — not too wet nor too dry: that the plowing be not too shallow nor too deep; neglects nothing that will make his land the more productive. He realizes that should he fail in this needful preparation, but a poor return will be given. He then brings the seed that was selected in the autumn and stored where the dampness could not injure, and plants it carefully. Ere many days each seed vessel is throbbing and flushing

with its own special activity, and the entire mass, like one unbroken life, moves in the melody of a common inspiration.

> "And the drops that are falling make glad the seeds,
> That promise bloom, and waving golden wheat.
> When June's clear sun yon mist-clad hills shall kiss,
> And earth's rich harvest answer to our needs."

We must be vigilant and watchful — use unsparingly the hoe; for should we sleep at our post, the enemies of the honest grains and grasses will crowd around, choking out their tiny life.

We have planted and cared for these infant shoots so tenderly that our harvest might be plenteous, that our granaries might be filled with rich golden ears, and our cellars stored with luscious fruits and tender, juicy vegetables. These are for our physical growth; and as we have planted understandingly, intelligently, will our efforts be crowned with success. Nature, ever active and true to the promise of seed time and harvest, will do her part. Are we unmindful of its grand beauties as we move about? Do we look upon the earth only with an eye to tillage; upon the sloping hill with its pine-crowned summit, only with an eye to timber? Upon the changeful skies only as reservoirs for moistening and watering our crops? Upon the silver streams that lace our meadows only as channels for irrigation? Upon the climbing vine as an insidious foe to joists and beams and timbers? And upon flowers as perfumed aristocrats, crowding and overtopping the free soil democracy of cabbages, onions and potatoes? Do we barely see the true beauties, or seeing fail to understand or enjoy?

If we are wise, we will cultivate the better part; develop the mental, our higher nature, that its harvest may be abundant with loftier and holier feelings that shall cast over the heart its kindliest influences.

The first harvest we must have that the world may live; the second, oh! forbid that we should be mental weeds; should be dwarfs in this broad field. Will we for a moment admit that it is a necessity of our calling that we be oblivious to everything ennobling and refining? That we must always see through some one else's eyes; not having the time nor skill to do aught but dig? We realize that we must work with hands as well as brain if we

would gain much of this world's goods. We cannot walk in the fairy paths of dreamland, expecting to be clothed and fed, without our own individual exertions. Ever since Adam was turned from the Garden of Eden, man has been doomed to earn his bread by the sweat of his brow; and should any one shirk, some one else will have to make up for him.

There are but few that have the impertinence to attempt to live by their wits alone after this Divine decree. Labor is the natural inheritance of the race, necessary to health as well as prosperity. Civilization is the result of various labor. Fame is evidently the same. So is genius. Labor is the great lever in the hands of all men. The wealth of to-day is the accumulation of the labor of the past, and remunerative work not only accumulates wealth and comforts, but gives the ability to use judiciously the means accumulated. It is exertion that renders rest delightful and sleep sweet and refreshing. The active only have the true relish of life, for "they who know not what it is to labor, know not what it is to enjoy." Gradually we are discovering that we have not only one set of faculties to be developed, but many, and that the developing of all is necessary to the perfect man. In thorough culture lies our only hope of turning the curse of labor into a blessing. That our clubs and granges have not been productive of great good, who will question? They have set many a farmer and his family to reading and thinking. You tell us these organizations are on the wane and will eventually die out. There has been a battle fought for the right, against ignorance and the slip-shod way of doing business that brings such discredit upon the profession; and those once awakened will not return to their sluggish, unthinking ways, though the organizations should cease. Our convention will soon close; because we do not meet again the coming week, is no proof that it has not been a source of pleasure and of profit to those who cared to learn.

Among those who take an interest and improve themselves so that they can work intelligently, lies our hope of a harvest that will place our occupation above reproach. 'Tis a great thing to feel that we have chosen well our calling; that it is suited to our

taste and the tastes of those about us. If we have made our homes the homes they ought to be; if we have not been too eager for the gain that the harvest of our grains may bring, neglecting in our children the education it is our duty to give them; if we have not forgotten that the young like their pleasures, fun and frolic, and have not kept their little hands forever digging till they are thoroughly disgusted, we need not fear that our young men will leave us when we need their help, or that our girls will say they do not like it, and will never marry a farmer. The tastes of all our children will not be for farming by any means, let it be made ever so attractive to them in childhood's days; and we would not wish to dampen their youthful zeal, when we find that their hearts are bent on following some one of the professions, by insisting that they should remain. Lawyers' sons do not all study law; physicians' sons do not all learn to use the knife and administer pills and powders. We all know that there are exceptions to ministers' sons walking in the straight and narrow way during youth, and choosing that as their profession in manhood. To be a successful student, nothing is more needful than a strong, healthy physical development; and this training which some deplore, is the best possible for manly chests and stalwart arms.

Reversing the old proverb, and having it all play and no work, I do not think the right way by any means. Their hands should be taught to do skillfully whatever there is to be done. The father does not do right that never allows his son to take to market any of the produce of the farm, and allow him to dispose of it. He may make mistakes, but he will have his wits sharpened and will not be bitten in exactly the same way a second time.

When I think about it now, it seems as if I would not leave anything unlearned that my mother knew how to do. But I know that we see things in a very different light as we grow older. It is not until we feel the need that we sigh over opportunities neglected. It is of the greatest importance that our children are learned to do well whatever is attempted. The boy who puts up his father's fence in a slack manner will be quite likely to do the

same for himself when he becomes a man. It is not a matter of small moment whether he slights his work while he is a boy or does it faithfully and well. Another work-fellow may set right whatever he has done wrong; but no one save himself can repair his ruined business habits. We should settle it well in their minds that trifling with their work now prepares the way for it in manhood.

You fathers of sons that are bright and quick to learn, study the best way yourselves, then teach this to them. You mothers of willing daughters do not always make the nice white loaf, for fear that for a time or two it will not be so sweet and flaky if you trust it to your fourteen year old Maria. Do not always starch and iron the white shirt, for fear that for once it will have to go in the next week's wash unworn. The young gentleman that weds the fair graduate of Vassar may take great pride that he has drawn such a prize in the wide world's lottery. She may be able to do wonderful things when it comes to the drawing room and society, yet as he comes down stairs with a limp collar to an ill-cooked breakfast, he will draw a long sigh that the mistress of his home cannot put upon his table a nicely cooked steak and delicious cup of coffee. Just now he'd rather she should be able to do this, than that she could calculate all the eclipses, navigate a vessel or survey a township. These home duties they should learn and we must teach them, else they will only be fit for the ranks of the great army of incapables.

There are so many things which make up the grand whole of a happy and successful farmer's family — contentment, peace and plenty must abound. There is no merit in being content with a slovenly way of living; with a leaky roof and patched windows; a house with loose clap-boards, and a tangled door-yard whose one-hinged gate gives free ingress to all creatures that may choose to enter. Could we make such dissatisfied with the crazy house and broken fence, the sorrel grown field, and garden of nettles; could we show them the improvement a pound of nails and a half day's labor would make on the house and yard, our convention will have done great good. The poor weary wife that strives to be patient but is not content with the surroundings and endless

round of duties, be not too hasty in blaming her. There is a history in the sunken cheeks and languid eyes. Mrs. Huntley says, "it is a mysterious thing called circumstance that decides what is properly woman's work, and the kind attention of thoughtful husbands, fathers and brothers will control these circumstances." Sow plentifully of the seeds of kindness; lift with helpful hands a part of her burdens, and great will be the reward in your own home. Peace and love should rule supreme. We each create an atmosphere of our own, but its effects are felt upon all around us. Why need we with dark face and moody voice sour the enjoyment of others. "Blessings on the brave hearted that can wear a smile above a trouble, and whose cheery voice brings a sunbeam of comfort with it."

We have passed our winter holidays. I trust they were happy ones in all our country homes. Did Santa Claus fill the wee one's stockings. Did the older children get papers or books that will be instructive and pleasing? Has mother wished for something that would be of great service to her, and did it come unexpectedly on Christmas night? Did father have the slippers, with pretty pattern worked upon them by his own child's skillful fingers, making them so dear that money would not buy them? Was there a joyousness upon that day that will cause it to be remembered above all others? Can it be that the purse strings were tightly clutched when a trifling expenditure of money would bring such happiness?

A noted speaker says, "he hates a man who is an aristocrat in his family, and whose wife is obliged to be a beggar. She wishes for a dollar, and asks for it as if she were standing on a bombshell. He replies, Yankee fashion, by asking what she did with the fifty cents he gave her last week." If there are any such as the gentleman describes, may their hearts relent ere another Christmas, so that each may prove to the other their affection in that beautiful way. The present, so near the beginning of the new year, is indeed a fitting time for making good resolutions — resolutions to be carried into effect, and not laid aside ere the winter weeks are ended. There will always be enough in the events which befall us to relax the spring of our resolutions and to mod-

erate our best aims. Yet we must strive to overcome the difficulties that lie as stumbling blocks in our pathway, turning them into blessings in disguise. Make them stepping stones to something higher, that our reward may be great in a happy and contented old age.

"We must not hope to be mowers,
And to gather the ripe gold ears,
Unless we first have been sowers,
And watered the furrows with tears."

"It is not just as we take it,
This mystical world of ours;
Life's field will yield as we make it,
A harvest of thorns or of flowers."

The President — Ladies and gentlemen, I would suggest the propriety of listening to all the ladies papers' before entering into any discussion of them. If there is no objection we will pursue that course.

A paper was read upon the "Cultivation of Wild Flowers," by Mrs. M. M. Davis, of Baraboo, Wis.; followed by one on "Houses and Homes," by Mrs. D. C. Ayres, of Green Bay, Wis. Then "Woman in the Garden," by Mrs. A. Kerr, of Madison; concluding with the following paper, entitled

"CULTURE ON THE FARM — INTELLECTUAL, SOCIAL AND ESTHETIC."

BY MISS KATE RHODES, GALESVILLE.

The word culture is derived from the farmer's vocabulary. He knows that it means the act of producing, improving and developing by care and attention. He knows that without it he cannot produce the finest grain and fruit. A great part of his time and that of his family must necessarily be spent in this work; but can there not be some left for the culture of the mind, the heart and the taste?

Some farmers are as intelligent and refined in every respect as the best representatives of any other occupation; some believe

that the less a man cares for books, for society, for art, the better he will succeed. This might be true were physical force all that is necessary; for the individual with little mental capacity often develops a surprising amount of physical strength. But as long as mind controls and directs matter, so long will intellectual power be at a premium.

If financial success were the only object, we might take the physical and intellectual man and leave out the social and esthetic; but we crave the sympathy and companionship of others — we owe each other reciprocal duties, and thus is created social life. At this point many stop. They never go over into the fairy realm of beauty and imagination. God has made this as much a necessity for some natures as social or intellectual life is for some others. Farmers, who have the most natural beauty around them, create less of it in their homes than any other class. Many crush out its development in their families as they would destroy burdocks or Canada thistles. Yet it is a part of God's great plan. Why need we scorn it?

Now let us see whether all this culture is compatible with the farmer's life. We will bring it down to detail, consider ways and means, and try to render it practical. It is not a culture that need be set entirely apart from the actual physical work of the farm, but it must grow up with that work — throw around it the mantle of its genial influences, and elevate and inspire to labor those who foster it. Many make the mistake of thinking that education is a thing apart from work — something away up in the clouds; but true education is the result of work and discipline. It is the result of culture, and it can accomplish what uncultured minds never can. Let us see what are the advantages on the farm for the kinds of culture we are aiming at. The highest intellectual, social and esthetic culture is founded on a physical and moral basis. There must be physical strength of fiber to endure a long mental strain. There must be moral strength to insure truth in all our investigations. Emerson says, "Veracity first of all and forever." We shall find that in all normal culture truth must be the leading spirit.

The farm affords the best opportunities for physical develop-

ment. Away from the heated, tainted atmosphere of cities, there is a purity of morals and a conscientiousness which lose their fine edge in crowded streets. Pure air and the genial influences of vegetation and sunlight have much to do with our moral as well as our physical health. No other occupation gives as many of these advantages as farming; and, as we have taken the ground that all other culture is based on these, we must infer that farmers might reach a high degree of development did they not carelessly throw away their chances. Do they want to study the natural sciences? The botanist can find his specimens in every field. Do they cherish a love for geology, and a wish to investigate the formations of the earth's surface? God's hills and valleys, His rocks and streams reveal the secret. Do they wish to know the laws of mechanics? Let them understand the principles of their farm machinery, and the mechanics of their daily work. They will find it a wide field for study.

Have they a turn for physiology and anatomy? Let them understand by dissection the formation of their domestic animals, and this knowledge will help them to understand their own bodies. Do they wish to study zoology or entomology? They can know the formation and habits of all the animals and insects native to their region, if they study from the life, as the student should. Practical chemistry will reveal the formation of their soil, the constituents of their own food, and that of their cattle and sheep, and will tell which land will produce the best corn, and which the best wheat. If they cherish a love for history, for poetry, for fiction, books are now cheap enough, so that many can gratify their desires.

Good newspapers are powerful engines for improvement in a family. Where there are children, a dictionary, with proper direction in its use, will be more precious than all the gold of El Dorado. A friend of mine said to me once: "I cannot tell how much I owe to an old leathern bound copy of Webster, which I learned how to use while it was still heavy for me to hold, and which was my constant reference in all my reading, from my seventh to my eighteenth year. It was my mother who taught me how to use it." If all fathers and mothers would take as

much care for the intellectual welfare of their children as they do for their material wants, we should have more men and women showing the good effects of judicious home culture instead of the imperfect handiwork of schools. The home is the place where the most time is spent. It is the most important factor in the life of each individual. If it be barren of books and papers, pervaded by a kind of intellectual paralysis, the children cannot grow up with a comprehensive culture, no matter how much they are sent to school. Let them read, observe and think for themselves, and not always believe a thing because "the teacher says so." Webster's Academic Dictionary costs $1.75. Make a beginning on that, you who have children, and incite them to use it whenever they find a word whose meaning they do not know. You will find it an invaluable educator. To study well, we must be comparatively free from interruption. The partial isolation of the farmer favors mental work. There are the long winter evenings, golden hours for reading and meditation. In many farmers' families the men take advantage of this, while the women knit or sew, not having even the privilege of hearing a book or paper read aloud while they work. This is all wrong. When did God ordain that women should commence their work as early in the morning as men, and continue it three or four hours later? When did He ordain that they should knit and sew, in order to save expense, while men read and rest? If we women work evenings, then the men ought to go out and split wood, to save hiring it done.

I appeal to the women who hear this, to take their evenings as their husbands and brothers do, for their own improvement, that they may exert a better influence in the world. I appeal to the men who hear it, to use their influence that their wives may have time for that mental culture which will be such a precious boon to them in guiding the education of their children. Many who have abundance of time, waste it in nonsense, or idly doze themselves sleepy long before they need to sleep. Others throw all their time and energy into a never-ending routine of hard work, and compel the same servitude from all whom they control. They put themselves, mind and body, into a treadmill, and grind out so much butter and cheese, so much corn, hay and oats, or so

many cattle. They make money by it, perhaps, but they would make more if they would exhaust themselves less, physically, and develop a greater acuteness mentally. The mind cannot work when the body is exhausted. They throw away all the grand capabilities of mind which it is possible for men to develop.

A right social life must have at its foundation three requisites; these are truth, sympathy and intellect. The amount of fraud and hollow pretension that exist in social circles show that many do not heed the first. If all would only try to be what they wish to seem to be, it would be much easier for them to attain the places in society which they covet. As soon as you have anything to give in a social way which is worth having, the world will find it out and court your society. An affectation of talent or culture will soon betray itself. If we are true to ourselves we cannot be false to others. To be of the most use in social life we must be sympathetic. We must have a kindly feeling for all because they are human, and therefore kindred to us, if we would win their confidence and esteem. We must see merit wherever it exists, regardless of rank, or so-called social barriers. Is not a man a man, or a woman a woman? What difference does it make whether they govern states or dig ditches if they only do it well and are kind and strong and true?

When more people believe and act upon the sentiment of Robert Burns, when he demanded the recognition of manhood, wherever found, social life will be better. He said:

"A prince can make a belted knight,
A marquis, duke, and a' that;
But an honest man's aboon his might,
Guid faith he mauna fa' that!
For a' that, and a' that,
Their dignities, and a' that,
The pith o' sense, and pride o' worth,
Are higher ranks than a' that.

"Then let us pray that come it may,
As come it will for a' that,
That sense and worth o'er a' the earth
May bear the gree, and a' that."

This may be applied in the farmer's life; first, in relation to his neighbors. If you are in any way superior to them, they will find it out without your asserting it. You cannot possibly make them any better if you never allow yourself to come in contact with them, and your haughty manner will make them doubt the desirability of a culture which includes no Christian charity. If you make no pretensions, they will be willing to learn of you, if they see that they can. If you have any light, do not hide it by your exclusiveness. Be generous with it. God doesn't hide the light of the sun from some of his people because they are poor and lack talents and refinement.

This principle has an application in regard to hired help. Do you think they respect you any the less, or do less work for you, if you treat them as if they had human feelings, than they do if you treat them as machines paid to do so much work? Christ said, "Inasmuch as ye have done it unto one of the least of these ye have done it unto me." Many so-called Christians repeat this devoutly, but are they willing to *practice* it in their daily life? If we are truly considerate of the feelings of others we have the only real foundation for polished manners.

There must be intellect in social life to give variety, and insure something to talk about. How much we can learn, how much we can teach, through the magical avenues of conversation. It is one of the best fruits of a generous culture. Where intellect is lacking, conversation degenerates into gossip, and is a disgraceful pastime instead of one of the highest enjoyments. This is very apt to happen among farmers, when the waves of the world's great events subside in ripples, and their own affairs look to them greater than all that is transpiring outside. If we wish to derive advantages instead of disadvantages from social life, we must avoid the putrid pool of gossip. It is a moral contaminator. Read up on some subject of interest and resolutely talk about that when some visitor tries to defame your neighbors.

Many farmers isolate themselves too much, and contribute little to social life. Some, mistakenly thinking that they cannot spare the time; others, that they derive little benefit from the society around them. It is not necessary to be always going somewhere,

or having visitors, in order to exert the most social influence, any more than it is the person who is always talking that expresses the most fine sentiments. We have no right to neglect home duties, and lavish our time on society; yet society has some claims which all ought to satisfy. We must judge for ourselves what time we can give to it. Good sense and a benevolent, social spirit, with a little time, will do more good than a good deal of time without them.

An observing philosopher says: "In society, woman, if not the queen, is at least the law-giver." Then, my sisters, let us try to make social life truer, more sympathetic, and more intellectual.

Beauty is a thing indefinable — an intangible something in sound, form, color, or expression, which thrills the senses with a kind of ecstacy. It, too, is founded on the eternal, all-pervading law of truth; for art which is not true to nature and humanity is false art. There are many who can appreciate beauty; comparatively few who can create it in its highest forms. If we have only moderate talent, let us cultivate that; for God meant the world to be beautiful. Every little improvement helps. We can have smooth, green grass, trees, shrubs and flowers in our front yards, and no litter lying about. That would be beautiful compared with some yards I have seen, where wagons, plows, old rails, weeds, pigs and boards were intermixed in the direst confusion. We can study beauty in the interior of our houses. Cleanliness is the first requisite; orderly, artistic arrangement the second. But you cannot arrange without anything to arrange, and you cannot produce effects in light and shade and color when you have no material to work with — no curtains, no pictures, no carpets. Many men who are generous in everything else, think it totally unnecessary to expend any money on the gratification of taste. They like a plain room just as well, they say. If they could only realize that many women long to have beautiful things around them, with a longing that becomes absolute pain, because it is never gratified, they would be more considerate. Sometimes you find a women who does not care, but I think something of the best part of her womanhood must have been denied her, or has ebbed away with the flight of years. A

woman of taste and ingenuity, if she has time, can accomplish much in the way of household decoration, at a slight expense. Ottomans, lounges, curtains, paper-racks, can be made of comparatively inexpensive materials. A stand of beautiful plants adds much to the cheerfulness of a room, especially in the winter. Taste in dress is more than the quality of the material.

Perfection of form and harmony of color are the prime requisites. Farmers' wives and daughters spend more money on clothes for the returns they get, than any other class, because they are governed too much by what other people tell them is "the fashion," and fail to cultivate their own taste. Some men declare that a common dress suits them better than a beautiful one; but I notice that those men always pay the most attention to ladies who are well dressed. It is a strange inconsistency, but I think I have solved the problem. They pay for the plain dress, and some one else pays for the other. I once saw a farmer in a milliner's store, buying a hat for his wife. He wanted a "bonnet for the old woman," he said. The lady in waiting showed him several, one of which was trimmed with a pretty spray of pink flowers. "Don't want that with them posies onto it," said he; "wouldn't give a cent an acre for 'em." And he took one of hideous shape, trimmed with plain black. Some people wouldn't give a cent an acre for all the beauty and harmony of Paradise. They expect Heaven to be beautiful, but they don't want to inconvenience themselves to help create any beauty there. Wouldn't it be better to have a little, as we go along; better to foster and improve the artistic instincts of children, instead of crushing them out, no matter whether they be in drawing, music, dress, or home decorations? Beautiful, artistic homes have an untold value in their refining power over their occupants and visitors. The Mohammedans say that "to Eve God gave two-thirds of all beauty." Beauty has a use; it is to ennoble and purify. All of us cannot be beautiful, but we can be as tasteful as possible, both in our clothing and our houses. There are few men so harsh and rude that they will not feel the refining influence of a sympathetic, graceful woman. The world of intellect, social life and

art lies open to women. We were not made to do precisely the same work as men, nor to exert the same influences. If we insist on helping do all the rough work, and entering into the dust of politics, perhaps they will let us; but I would infinitely prefer to let them do it, while I do something else, just as I am content to let them draw wood and hay while I wash dishes and sweep. The world needs some qualities in us which I think the political woman would not possess. I find a field that is wide enough in the mysterious evolutions of intellect; in the magnetic symathies of social life, and the never ending delights of beauty.

The President — That closes the series of papers upon our programme for this afternoon. We will now have some discussion — open for all. And I hope all will feel at liberty to take part, whether they belong to either society or not.

A motion was made by Mr. Plumb, that a vote of thanks be tendered the ladies who read papers, for the same.

Mr. Babbitt — In rising to second this motion in behalf of the Agricultural and Horticultural Societies of the state of Wisconsin, I desire to say that we do not offer in compensation dollars and cents, for we could not give it if we saw fit; but we are very grateful that the ladies of Wisconsin come out to these meetings and give us such excellent papers; and we want to have you remember this when you go home, that we admit that your power is larger than ours.

Ladies, you know very well, although you do not take your positions as politicians or active members in the outside world, that your influence is potent. You exert in your homes that power which men cannot exert —

> "That power which resists the empire of decay,
> When time is o'er, and worlds have passed away.
> Cold in the dust the perished heart may lie,
> But that which warmed it once, can never die."

No. We live in thoughts and feelings; not in figures on a dial. He most lives who thinks the most, feels the noblest, acts the best; and he whose heart beats quickest lives the longest.

I expect that we shall have a unanimous vote in favor of the resolution.

Mr. Wood, of Baraboo — I will detain you but a moment. I came this year, as has been my custom for a few years past, to attend these conventions which are annually held in Madison. And I have been spending the last three days in attending the meetings which have been held in the Agricultural Rooms below. I have given pretty diligent attention to the subjects which have been discussed, and to the remarks which have been drawn out by the various papers which have been presented. Most of them, as a matter of course, have been upon subjects which are supposed to point toward the accumulation of money; and this is doubtless very good, because these temporal wants are pressing us on every side; and we know that in these times, with great burdens resting upon us, we need to work intelligently and profitably. But I have listened to the general tone of the convention when men only were present, and have been somewhat pained by the apparently mercenary or heartless motives which prompted many of the remarks. The mere idea of money-getting. And it seems to me that while some were mourning over the fact that the young people are oftentimes induced to leave the farm in order to obtain more lucrative positions in the world, that we are at fault in this respect in our home circles, in holding up before our children success in money-getting as the chief success of life, and inducing them to become disgusted with the way pursued on the farm, so that they wish to rush off to some more speculative method by which they can sooner amass wealth and make a figure in the world, and have the reputation of being wealthy men.

I believe, Mr. President, that we should hold up to them a truer standard and not press upon their attention so much the importance of simply acquiring wealth. I know that there are many noble men who are struggling hard to gain for themselves and their families the necessities of life, who would gladly be released from these labors if they could only succeed in gaining a competence. They are pained from day to day with the fact that their lives are so apparently taken up with the idea of acquiring property. We must have sympathy for all such men; and we must excuse them for an appearance sometimes which belies their hearts. Money-getting is one thing, hoarding money another.

Hoarding is not elevating to man, because it is a faculty possessed in common with the brutes. Squirrels, mice and many other vermin have the faculty of hoarding, and they will carry into their holes for the winter a superabundance of food, in order that they may have it in store. I do not think we need to say a word which will encourage any man in the practice of simply hoarding.

In coming down upon the train from Baraboo, a man came on board who was well known to be a wealthy man, and some remarks were made as to his conversation, as it all turned upon the process of making money. A passage of Scripture came to my mind —"How hardly shall a rich man enter the Kingdom of Heaven."

And the remark was made by one upon the train that a man who had so much wealth could think of nothing else. That his time was preoccupied. Now the Scriptures are not arbitrary in that expression. Wealth is not necessarily condemned; but we know it is a fact that the man whose heart is given to the acquirement of wealth gets no opportunity to think of things beyond this life. So it may be truly said, "How hardly shall a rich man enter into the Kingdom of Heaven."

I am pleased, Mr. President, with the remarks to which we have listened this afternoon. And if I was to point to either side of our convention as the one in which I took the most pride, and which I think would most commend our Agricultural Society and our labors to the respect and earnest attention of the people of Wisconsin, it would be that class of subjects and that line of thought and those sentiments which have been inculcated here this afternoon, and to which we have listened so pleasantly and so profitably, I hope. I would point to it as a thing which would justify our existence, rather than to those discussions and papers which point us simply to the processes of acquiring wealth.

I rose to make these few remarks because I wish to emphasize the vote of thanks which is proposed here, more than I could do by simply voting in the affirmative when the question is put before us.

The President — The question is upon a vote of thanks to the ladies. I can say to you that our ladies work for nothing, and

pay their expenses. I am sorry to say that the society is not able to pay them. You can appreciate it all the more. And what is still more, I know that the authors of some of these papers that we have listened to this afternoon, are ladies who do their own housework. They are not rich. They are cultivated.

The motion was carried unanimously.

Mr. Babbitt — The principal argument, or the strong point that the ladies all seem to make, is the force of home influence. That is precisely their field. I feel that I am outside of exerting that kind of influence at home that I ought to exert; and I am almost of the opinion that it will be my duty to educate the only remaining son that I have, up to the idea that he must accumulate wealth, and pray God in my own heart that the influence from the better member of my family may be such as shall point him in the right direction.

The time has come in this country when men, if they expect to take positions, or expect that their families will take good positions in society, have actually got to have money. And the Scriptures long ago seem to advocate the idea that a man who did not provide for his family was worse than an infidel.

I have had lots of this poetry in my heart. I have illy done the duty that has been done by some of the citizens of Wisconsin. Down in the lower rooms I have learned how step by step wealth has been accumulated and laid one side by men whose hair is not as grey as mine. And I see that they have an independence of spirit and an independence of heart way down under their vests, that I do not really possess.

Now I wish, inasmuch as I am inclined to be a sinner, that these women would understand just as thoroughly as possible, that they have a duty to perform outside of the poetry of this life; and that we, the men, have our duties to perform; which is to get money for them to use, for we don't know how to use it in the right direction. They must educate the children up to these higher and more refining ideas. They must point from the beauty of their present home to a better home. And I desire at this time, inasmuch as I presume I never shall make another Christian speech in my life, to have incorporated in the minutes,

to be looked upon and read by the daughters of these intelligent ladies here, a little ode from an anonymous writer in regard to a home beyond.

"There is a world we have not seen,
That time shall never dare destroy;
Where mortal footstep ne'er hath been,
Nor ear hath caught its sound of joy.

There is a region lovelier far
Than sages tell, or poets sing;
Brighter than summer beauties are,
And softer than the tints of spring.

There is a world, and oh! how blest,
Fairer than prophets ever told;
And never did an angel guest
One half its blessedness unfold.

It is all holy and serene,
The land of glory, and repose;
And there to dim the radiant scene,
The tear of sorrow never flows.

It is not fanned by summer's gale,
'Tis not refreshed by vernal showers.
It never needs the moonbeams pale,
For there are no lone evening hours.

No, for this world is ever bright,
With a pure radiance of its own.
And streams of uncreated light,
Flow round it from the Eternal Throne.

There forms that mortals may not see,
Too glorious for the eye to trace,
And clad in peerless majesty,
Move with unutterable grace.

In vain the philosophic eye
May strive to view this fair abode.
For readeth in the uncurtained sky,
It is the dwelling place of God."

Mr. Field—I had not thought that I would say anything upon this occasion. I felt in hopes that some of these ladies, while they were reading us such beautiful papers, might conclude to discuss them themselves. I should like to see something of that

kind inaugurated. I know there are ladies here of sufficient intelligence and of sufficient confidence, perhaps, in themselves that might get up and interest us very much indeed.

I regret, sir, exceedingly that I was not in to listen to all the papers. I listened to one and a part of another, and I have been very highly pleased. I have been delighted. I have been educated by listening to some of these papers. And, sir, I think that these papers will do us all good. The sentiments therein contained are what we all ought to listen to oftener than we do; but I think it a little unfair that all of these good things should come at once. During our convention we should have had these papers sandwiched in with some down in our rooms that are not exactly of the same character. It would have added to the interest, and perhaps we could have gotten more of the ladies into our convention in the Agricultural Rooms. They will turn out to hear ladies' papers, but somehow or other we can't get them there very much to hear our papers.

Many thoughts came into my mind during the reading of the last paper, which was the one I listened to; and one especially that struck me with force. And that was that we must educate our children upon the farm. There is the place where they receive home influences. There is the place where they start, as it were, in life, and where their physical as well as their mental natures must be shaped for the future good of the world. We must look to the farm and to the industrial pursuits to furnish the young men and young women to occupy important positions in society and in the business world. I remember, sir, when a boy, living in New Hampshire, they used to send to us from Massachusetts, from the city of Boston especially, for young men who had been brought up on the farm, to employ in their work shops and in their stores.

They desire to employ those who had never lived in a city in their lives, and who had been brought up on a farm and educated in habits of industry, economy and self reliance. I think it is true, to-day, that a large proportion of the business of the world is done by men who have been brought up on the farm, who never received, perhaps, more than a common school or an academic

education. Not that I would discourage our young men or women from going through the colleges and seminaries of learning, for I do not believe there is a business man in this country to-day without college training but who feels that if he could have had a better education he could have done his business easier and better, and with much greater satisfaction to himself. I know, sir, that is true in my case.

I hope we shall hear from some others present, and I wish there were some ladies here who would say a few words upon the papers which have been read.

Mr. Hatch — Mr. President, I apprehend, I believe, that the main theme, the center theme of all the papers we have listened to, is the idea of home. And it awakened in my mind a chord of sympathy. We enjoy what we understand. If we do not know how to write we cannot enjoy the beauties of Shakespeare, and if we do not understand astronomy we cannot enjoy discussions as to the magnitude of Mars or the distance of the planets. The spirit of enjoyment comes from enlarging our hearts and opening them to the influences of education, and the object of this is, that we may at least make ourselves better citizens, better society, and make for ourselves better homes.

To me home is the sphere of woman in which she shall be enthroned as the queen of influences that shall make men better — make them better citizens, better fathers, better in every way. Perhaps no influences surrounding home in the way of occupation or employment, are superior to the cultivation of fruits and flowers. I once knew a gentlemen who for forty years had suffered from physical disease. He was one of the most wicked men I ever knew. His sufferings had made him cross and irritable; so much so that he seldom had a friend. He made an enemy of a lady, and at last he was taken more violently sick, and for three days he sat upon the bed holding his limb, suffering from hip disease. Finally he was compelled by the doctors to take to his bed. After suffering intensely for a long time, he expressed a wish that he might have some strawberries. The lady to whom he had been an enemy hearing his wish, and sympathizing with him, prepared a beautiful dish and sent them to him.

His physical sufferings had enlarged his imaginative capacity, and he asked what it was they had brought in. Strawberries. He fell back exhausted on the bed a moment. He raised up again and said, "What are those?" Strawberries. After a moment he recovered strength and raised up again; "My God," said he, "Are those strawberries?" They seemed so large, so luscious, so grand and beautiful to him. After he had partaken of them he kept them by his side, taking one now and then, and sent for the lady, and with tears streaming down his face he said: "I want to thank you for these. I want to tell you how much good they have done me, and above all I want to tell you that I want you to forgive me for the wrong I have done you." Said he, "You have been more than a Christian to me."

Those are the influences that follow such association, and I presume there is not a horticulturist who loves his home, and loves fruits and flowers, but has the disposition to forgive his enemy when he repents. And it will make him repent. It is a good thing to make good resolutions — a better thing to perform them. We all need better associations and better society, and one of the objects has been accomplished if it inspires us to better motives, better actions, and better resolutions well executed.

Mr. Adams — I desire to make a few remarks at the present time. While listening to the papers, my attention has been called to the discussion, yesterday afternoon, as to how we shall keep our boys upon the farm. I think all interested in that question will do well to consider the papers just read; and each one of us should feel it incumbent upon us to create homes of comfort, culture and refinement, and give our children the best advantages within our power to obtain an education; and if some of them manifest a disposition to enter other pursuits, and seem to be adapted, encourage them no matter if they do leave the farm. Say or do what we will, our children as they grow up will scatter to the various occupations of life according to taste, disposition, and circumstances. Farm life has many attractions to people of culture and education, and I see no reason why we have anything to apprehend from this drain which it is claimed is constantly being made from the farm. We shall always have enough to

engage in agriculture. And those of us who are engaged in it should so conduct it as to show some pecuniary results from it.

Mr. Boal — I have held, previous to this time, the views, I might say, of a pessimist; but after hearing these papers, I feel inclined to take another view, if these ladies are a fair sample of ladies of Wisconsin. If they hold like views with the majority, I think there is hope for our republic yet. I am inclined to think that ladies who can write such papers will raise families that will be a credit to themselves and a credit to the nation.

Upon the subject of making our farms attractive to our sons, I wish to say that the profits of our farms are so small that if we educate our sons they will not be contented with the remuneration that the farm gives for the labor. If you send your sons to college and give them an education, will they be contented to go into the backwoods and take up one hundred and sixty acres of land? No. They will naturally gravitate towards the city, where higher salaries are paid. And why is it so? It is simply this: that we get all that we ask. If we demanded more, we could get it. We could make our calling as remunerative, perhaps, as the professional man or merchant. It takes us the most of our time to provide for the real wants of life. There is a power growing around us on every hand, which is saying to us, so much only shall you receive. A rich man in our state, when some poor person dies, sends a bunch of flowers to place upon the coffin. Why doesn't he do something for the living poor, so that they would be able to provide flowers for themselves?

One speaker said they sent to the farms for honest boys in stores and offices, but is that the sentiment to-day? Go into the stores and see. They will tell you that the farmers are more corrupt, as a class, than any other class; that they put the largest potatoes and strawberries on top, and so on. That is the estimation in which they are held to day, and they deserve it. We ought to be true to ourselves — sell everything on its merits, and demand the respect that is due us as farmers. I hope the next generation will be better than this, and I predict from these papers that they will be.

These ladies have taken their true place in society — the home.

There their influence is vastly greater than it would be at the ballot box, for there they can mould the minds of those who cast all the ballots.

I hope this meeting will be productive of good. Many who have been here and heard these papers read will go home and change some things around their homes. It is not enough to leave the training of our children entirely to our wives. We must assist them. They may think we do not appreciate the sacrifices they are making; but let us each and every one resolve to do all that in him lies to promote the public good by doing good at home.

On motion of Mr. Kellogg, the convention adjourned to the Agricultural Rooms to take up the

QUESTION BOX.

How should Rogers' Hybrid vines be pruned to give best crops?

Mr. Greenman — It will depend a little on the age of the vine. I would prune it as I would any other vine — according to the strength of the vine. Most of the Rogers' Hybrid vine being very strong growers, I should leave more fruit buds and more spurs upon the vine than I would upon the Delaware. The new wood should be pruned back to two or three buds, covering a space of from four to six feet square. If you have two canes, cut them four or five feet long, and spur them back to three buds.

Mr. Hatch — How may we know what fruit buds are?

Mr. Greenman — Fruit buds are always found upon the new wood. The wood of this season's growth produces the fruit next season. We get no fruit upon two year old wood.

Mr. Hatch — Can you tell whether a certain bud will produce a fruit spur or not?

Mr. Greenman — Not otherwise than you could tell a strawberry. The strawberry plant will not produce fruit unless it has sufficient time during the season to form a fruit bud. The fruit is already formed in the bud, and you discover, in breaking the buds of the grape vine in the spring, a little cluster of fruit or blossom, and unless those buds have sufficient strength or maturity to produce the fruit in the bud, you will not get the fruit.

If it is a well ripened, developed bud, it will produce grapes upon the arm. If you had a microscope sufficiently strong, and could open that bud with sufficient care, you could see a cane four feet long in that eighth inch long bud. The best fruit buds are those that are plump and large.

Mr. Jordan — Isn't it a fact that you may rub off all the buds that appear, and there are dormant buds that will come out and bear fruit.

Mr. Greenman — There are some varieties, but most varieties do not produce fruit from the accessory buds.

Mr. Hatch — I want to know if you would renew a Rogers Hybrid from the ground on account of its vigorous growth, or would you save considerable of the old wood?

Mr. Greenman — My experience has been that I never get any very good fruit on what is called the annual or renewal system. I think the best fruit is produced from spurs or arms from the old wood.

Mr. Hatch — What do you use for mildew?

Mr. Greenman — On the Rogers grapes, I am of the same opinion that I was four or five years ago, when I read a little article on the subject. My observation convinces me still that the Rogers, after they are thoroughly established, will commence to mildew, and when they have borne about two or three crops, you begin to have trouble with them — loss of foliage. I discover it usually in the stems holding the buds, and I immediately use a little sulphur in a large pepper box. Throw a little sulphur into each bunch, and a little upon the vines and perhaps on the ground. I went over more than five hundred Rogers vines this season with a little less than two pounds of sulphur, and I had but two mildewed bunches of grapes that I know of, in my vineyard, and they commenced to mildew before I had commenced the sulphur.

The President — Is there any danger of over-manuring the Delaware vine?

Mr. Greenman — I do not know that there is. I have never manured very much. In too rank growth, the wood grows so rapidly, that the fruit buds don't seem to fill.

A voice — Can you grow grapes on a wealthy, rich soil, where it lays comparatively flat?

Mr. Greenman — If I had a flat hill, I would take that. If not, I would take prairie. I would have some grapes, anyway.

Mr. Chipman — In answer to President Smith's question, about fertilizing the Delaware vine, wouldn't you say that you could fertilize it too much?

Mr. Greenman — I think they will bear higher culture than the rapidly growing vines, and produce fruit.

Mr. Hatch — What do you do to save the foliage when it is dropping, in the summer?

Mr. Greenman — I would produce some new canes.

Mr. Hatch — Suppose along in the middle of the summer your leaves are dropping off, and you cannot help yourself?

Mr. Greenman — The probability is you won't have any fruit next year, and perhaps not any vines.

Mr. Jordan — You say you would rather plant on a flat hill than on the prairie. I don't know as I fully understand you.

Mr. Greenman — My experience has been in planting upon a very steep hillside, and then top of the hill, that my best fruit is up where it is not quite so steep.

Mr. Jordan — How would it be at the bottom of the hill?

Mr. Greenman — If it is a southern exposure, you are liable to burn out.

Mr. Jordan — Is high land, such as is best for orchards, best for grapes?

Mr. Tuttle — You cannot grow a Concord grape after it gets very old and strong on the renewal system on a very strong, rich soil. You can grow them where their tendency is to growth. The renewal system produces a succulent growth, but doesn't furnish much fruit. I get more fruit off of one vine without a knife to it, or being covered for five years, than they get off of fifty by cutting.

If I was going to grow Concord grapes on flat land and a very strong soil, for the first year or two you can produce some fruit, but after they get age and you get a strong root, I believe it is better to get ten, twenty or thirty feet of vine of old wood.

I have three hundred Concord vines that lay at the foot of a hill where you come down onto the black soil. The first year or

two they bore very well. Since that, I have never been able to get grapes enough to pay for bothering with them.

When I commenced planting a vineyard I planted it on a south hill side, sheltered from the north, and sheltered from the west, and quite steep. I thought I had got as good a place for grapes as there was in the state, and I planted all varieties, particularly a good many of the Rogers, and for a year or two I got some Rogers grapes in good condition; but it has been many years since I had any Rogers grapes that amounted to anything on that side hill. I have abandoned it as a place for a vineyard. We had a regular southern Illinois climate. The grapes mildewed.

Mr. Jordan — Can they beat us in Illinois raising grapes?

Mr. Tuttle — No, sir. The rot and mildew are a great deal more common south than here. In regard to the Rogers grapes, different kinds require different treatment. The tendency of the No. 15 is an excessive amount of wood, while in No. 4 you have to encourage the growth of wood. I think No. 4 is one of the very best of the Rogers grapes, and the fruit is less likely to rot and mildew than the 15.

A voice — How do you manage the 15?

Mr. Tuttle — It depends entirely upon the soil. On heavy clay soil you can use the renewal system. I do not believe, with the renewal, you can do anything with a No. 15 grape, unless on the north side of a hill, and on very heavy clay land. I believe if I was growing No. 15 grapes in a village, I would try and put them on the east side of a board fence or building. I would train them thirty feet long; have something that I could lay it up onto in the summer and drop it down in the winter. I believe you could grow more grapes on one vine in that way than on twenty in the ordinary way.

QUESTION.

What is essential in planting a young apple tree where an old one has died, and large trees stand adjacent, to insure growth of the young tree? Is it necessary to draw in fresh soil, or to plow the land, using plaster or some other fertilizer, and if so, what is best?

Mr. Greenman — I don't know as I can answer the question, but I will make a statement. Mr. Rudolph Brown, of Wauwatosa, has an old orchard of forty trees, more or less, and Mr. Stickney took the job of filling that orchard in, and warranted the trees to grow. He took a great deal of pains in setting the young trees, and Mr. Stickney's firm have filled that orchard twice thoroughly, and Mr. Brown said that he was satisfied, and has given it up. These young trees cannot be made to thrive scattered about among these old trees.

Mr. Hatch — I apprehend that the circumstances would be something like this: A tender variety had killed out, or a variety that was not sufficiently hardy to endure the climate even under fair chances, had killed out. Now, if so, of course it would be folly to plant the same variety over again in the same place.

Mr. Greenman — We planted hardy varieties.

Mr. Hatch — Then probably the practical question would be: Can we, where a Tallman Sweet has failed, succeed with the Duchess of Oldenburg? If I had a poor site, and a good variety had failed, I think I never would try again.

Mr. Olds — I remember hearing that question come up at a horticultural meeting that I attended a few years ago. And Mr. McWhorter, I think his name is, one of the pioneers of the fruit business, said that he had tried to fill up places where old trees had grown, and had always found them a failure — that there was something gone from the soil that the tree needed; and it was folly to attempt to fill up with new trees.

Mr. Greenman — Mr. Brown has selected a new site just adjacent to the old, and the trees are in splendid condition. They have been set two years.

Mr. Jordan — In nine cases out of ten, I believe if young trees are planted in old orchards, they starve to death. That is the main trouble. If you clear up your land in an old orchard, plow it up, and cultivate it, you can plant a new orchard on it, especially if you don't plant in the old hills where the roots are.

Mr. Hurd (Walworth county) — I have had a little experience in that matter. I set out fifty trees, and they commenced dying out. A good share of the orchard died out, and after that I kept

filling in, and I had no success until two years ago. I had a German at work for me, who had been drilled in that business for five years — an orchardist and a gardener. I set him to filling in my orchard, and he filled it, and the trees are doing finely. I found I didn't know how to set out trees. In the first place, he digs a hole about three or four feet across and three or four feet deep. Then he fills in with the same soil to within a foot or so of the depth that he wants his tree. He sets his trees in there, and fills in around them a top soil, works it up a little, and throws in a little water. He leaves it until the water absorbs, then fills the place and tramps it down. He hasn't failed in a tree that he has set out.

Mr. Tuttle — I have good trees growing where I have taken old trees out, and some varieties have done remarkably well; but it is necessary to prepare the ground somewhat, where trees have been grown and stood for a number of years. I have practiced sometimes taking the brush, and portions of the tree, and burning it on the ground, digging and cutting out the old roots; you don't want to leave any of those in there. I have an orchard growing near my house, and I should hate to move it off anywhere else, and neglect to plant trees where old ones had died out. I have trees all the way from two to ten and twelve inches in diameter, growing where trees have been taken out.

If you take the stem of the old tree out, and stick another in the place, it will be pretty sure to die, especially if it is a dry season. It is better to give the ground time to become fitted for the new tree. I planted a tree four years ago in a place where I had taken out an old tree. It was about the size of my cane; now it is four inches in diameter.

Mr. Phillips — Does he put anything in except the same dirt that he took out?

Mr. Hurd — Nothing but the same dirt.

Mr. Kellogg — It would seem that the German's method was all right if he had only gone and got soil that had not been tainted and filled the hole. I think the effect of taking the same soil will be felt by the tree after two or three years. If McWhorter of Illinois, as Mr. Olds states, has failed, and gives it up as a bad job, I don't know what we had better do.

Mr. Phillips — The finest Pewaukee trees that I have, and the finest I have seen anywhere for their age, are set in an old orchard. I am rather of the opinion that they are not in the places where the old trees stood. The ground is worked up good. They are fifty per cent. better than where I set them out on cultivated ground.

Mr. Palmer — I live in the openings, and sell trees to men in the openings where it was timber land once. Occasionally I hear a man say, there is one spot where I cannot make a tree grow. I tell them I believe there was a tree growing right in that spot sometime, and it has taken out the natural food for the tree. In planting old orchards, I find when there is a complaint that the tree dies, they set them right in the same place. I believe if they take soil enough from another place to start the tree they will get it to grow. They won't until they do. The trouble is the tree that stood there has taken all the natural food that the tree wants out of the soil for a certain distance around. I do not believe it is a disease in the old wood that prevents the trees growing, so much as it is the food of the tree has been taken out.

The President — I would like to say one word upon this question, because it is a very practical question, and one that has arisen and will arise more and more. And it rests upon two points: Is there anything in the place of the tree which died out which is poisonous to the new tree? That is the first question. I answer, no. It is as natural for one tree to follow another as anything in nature. It is a question of nourishment. The old tree is supposed to have exhausted the elements that the new tree needs, which you must supply by other soil. If the old orchard is in grass, you need to cultivate it.

QUESTION.

How should strawberry plants be mulched during the summer, if at all?

Mr. Greenman — They should be mulched very lightly in the winter, and leave it during the summer.

Mr. Adams — I have an idea that any man here who has grown strawberries knows enough to mulch them thoroughly with some-

thing. What that shall be is a question of circumstances. If the man happens to have leaves, he can mulch them with leaves. If he happens to have straw, he can use that. If he has saw dust, he can use that. If he has marsh hay, he can use that. If he has coarse marsh grass, he should use that by all means, for it stands clear above any article that I know of for that purpose.

I read an article a few weeks ago, written by some gentleman in Michigan, a professor, I believe, in the University, upon this subject, and he stated that it was his custom to chop up his straw into very fine particles and distribute it over his strawberries. I do not know what his object was. I have had probably fifteen years' experience in mulching strawberries, and I find the best results are obtained by mulching heavily with any coarse material finer than corn stalks, and let that mulching remain during the season; allow the strawberries to come through, and only remove the heavier portions of it. I apply it in the fall, just as soon as the ground freezes or just after. The only advantage of putting it on after, is that you can drive upon the ground. Watch the weather closely, and put it on just at the time it freezes. The advantage is in keeping the ground moist, and keeping the fruit clean.

Mr. Hatch — After the crop is off would you cultivate again?

Mr. Adams — After the crop is off, if the season is an ordinary one, not specially dry, it is well, immediately after picking the fruit, to mow the vines, rake them up and burn them, and clean the ground up thoroughly. Plow up at least half of them, and perhaps three-fourths, and then drag it crosswise and leave it.

Mr. Hatch — That would look like murder to me.

Mr. Adams — It certainly is death to all insects on the plantation, and it is also death very nearly to all the weeds.

Mr. Hatch — Nearly all the plants?

Mr. Adams — No, sir. I believe we treated two acres that way, and the neighbors went along with their hair standing on end. In less than two weeks the plants came up fresh and green and vigorous.

Mr. Hatch — You speak of it as an experiment.

Mr. Adams — I speak of it as a fact established by experiment.

Mr. Jordan — From my experience, the most successful plan is to plant the strawberries in rows three to three and one-half feet apart, and let them be, keeping the middles clean. Cultivate them in the fall, or latter part of summer, thoroughly, and then mulch them just as the ground freezes in the fall. Rake the straw off of the plants in the spring, and leave it on these vacant places until the fruit is gathered. Then take off all this straw and run a five toothed cultivator through the patch, and clean it out in good shape.

Mr. Adams — The effect of this burning is to prevent the plant from running in a dry season. Last season our plants run but very little, while the season before, treated in exactly the same manner, they made numerous runners.

Mr. Tuttle — I have mulched with almost everything, but I have found the best mulching is corn stalks, laid not in bunches but straight, so as to be even all over the ground, thick enough so that you cannot see any of the plants. I tried that, and thought of course that I had got to move the stalks in the spring; and in the spring commenced moving them. I didn't finish it; I left it for a few days, and when I went back to do the remainder of the work, I found the strawberries growing up through them, and I left them there. The vines were much better, and the fruit was larger, and the drouth had no effect on them at all. Those very stalks laid on them for the next winter; and the next winter they were partially decayed, so that they made a good mulching for two years. The new strawberry that we are growing, we do not have any weeds. We let the strawberry take care of the weeds after the first year. That is the Crescent Seedling. I saw the original bed. It has been fruited five years, bearing heavy crops, and entirely clean from weeds.

A voice — How do they bear after they get so thick and matted?

Mr Tuttle — They told me that after they stood three years that they couldn't see any difference. I don't know that there was a difference in the bearing between the first year and the third year. And they claim now that the fifth year it bore just as well as any

time. And the man said not one single dollar's worth of labor has been put out on a third of an acre since the first year.

Mr. Kellogg — I approve anything any one says on this question on either side. I don't care whether it is up hill or down. One man says, put on the mulching in the fall, and take it all off in the spring; you want to leave it on and let the plants come up through it to protect the berries and weeds. After fruiting, I want that mulching out of the way. Mr. Adams' plan of renovating the old bed is all right. I tried it once, and I had a finer picking of strawberries from that ground than I had ever taking from the two years of its best fruiting.

A year ago last spring I set out 800 plants in one body. The rows are nineteen rods long and four feet apart. The last row had ninety-nine plants. The third picking on that row was a hundred quarts. These were mulched with sawdust. That mulching was not taken off. They are a solid mass of vines, some mulched and some not. I propose to see whether they will mulch themselves or not, and next season I can tell you whether the end of the patch that is not mulched is dead or alive. The question now is, how shall I pick the fruit next season? It will be six inches deep.

Mr. Adams — Can this gentleman recommend the Crescent Seedling for a market berry for shipment five hundred miles, in comparison with other leading varieties?

Mr. Tuttle — I found no difficulty in marketing and shipping the Crescent Seedling. I heard no complaint. We shipped to St. Paul. That was the furthest place shipped. The Crescent Seedling appeared to be quite as hard a berry as the Wilson. That is more juicy, yet I would rather put Crescent Seedlings on the market and send them five hundred miles, than to put the Wilson on the market and send them five hundred miles and have them out forty-eight hours. I can put the Crescent Seedling beside the Wilson after they have been picked forty-eight hours, and spoil the sale of the Wilson entirely. As a market berry, I do not know of anything better.

Mr. Adams — From what little I know of the subject, I differ with the gentleman about the merits of this berry. We haven't

made more converts to-night than he ever made in one sermon before in his life. [Laughter.]

Mr. Gordon — It isn't often that I get a chance at so many sinners. [Laughter.]

Mr. Field offered as a substitute for the resolution before the convention, the following, which was adopted:

"*Resolved*, That this joint convention unanimously indorses the present movement to amend the constitution of this state so as to require that all property in the state shall forever hereafter be equally taxed, excepting only property owned by the general government and this state.

"*Resolved*, That copies of the above resolution be sent by the president of this convention to the president of the senate and the speaker of the assembly."

Adjourned.

FEBRUARY 6, 9 A. M.

Convention called to order by J. M. Smith, President State Horticultural Society.

A paper was read upon "Pruning Fruit and Ornamental Trees," by G. P. Peffer, of Pewaukee.

The President — How large a limb would you graft, in putting on new tops?

Mr. Peffer — Not over an inch or an inch and a half, at the furthest.

The President — If the limbs are large where they come out from the body, you go out to the end?

Mr. Peffer — Of course; commencing near the top, and going downwards.

Mr. Hays — Do you consider, when you put the graft in the top of the old standard, that the graft will be hardier than it will on the natural root?

Mr. Peffer — No, it won't be any hardier, but the further you get away from the ground the more apt it is to stand the climate.

Mr. Hurd — What is the harm in pruning when there is frost in the wood?

Mr. Peffer — As the frost comes out it deadens the edges.

Mr. Tuttle — I have rarely listened to a paper read before this society that shows so much good sense and practical experience as the paper read by Mr. Peffer. I think we may let that paper go upon our books as perfectly safe to follow. It shows good, practical experience, no theories. It is the result of long continued trial and experience, and it is safe to follow its recommend.

With regard to top grafting; fifteen or twenty years ago, the theory was pretty prominent among fruit men that by top grafting from the Duchess such trees as the Rambeau or the Spitzenberg, we were going to get some valuable fruit, and they would live. I have no question but what they would live longer than one grafted at the roots, but we had a winter that knocked the bottom out of it. You cannot depend on trees grafted in that way. We want a tree with a hardy body, and the tree grafted at the root makes such a body.

There is one practice which nurserymen have followed, and recommend, which I consider one of the greatest humbugs that we ever had in use. That is, grafting on crab roots. All experience east and west is that the crab as a stalk is worthless. There may be varieties of apples that do better. I haven't found any yet. They do well at first, and then dwindle away. If a person wants to get a little fruit right away, he can work them that way, and bring them right into bearing. As an orchard tree, the circulation is improved, and the tree is made tender. It will bear a few apples, and never get any larger.

Mr. Wood — I would like to ask Mr. Tuttle a question. It seems that certain tender varieties can be more successfully grown on top grafted stalks. What should be used for the stalk?

Mr. Tuttle — I would use the hardiest stalk I could get. There is no tree unless it comes from a climate equally as severe as this, that can said to be tested as to its hardiness under fifteen or twenty years.

I was in Kilbourn a few days ago, and a man told me he had a Duchess dying — an old tree. I told him it would be a curiosity to see a Duchess tree die — an old tree, and I went around to see it. It was a large tree, and when I got to it I saw that the body was a Seedling. The tree was top worked five or six feet

from the ground. The Seedling was just about used up. The Duchess tried to live, and there was some little appearance of life in the top; but the body was so near used up that of course the tree had to go. If I was going to top graft any trees now, if I had Duchess trees that I wanted to put into something else, I would work such trees as the Wealthy. Something that I thought would pay.

Mr. Hatch — How would fall Spitzenberg do for top grafting?

Mr. Tuttle — I think that would do very well. I don't consider it near as hardy as the Wealthy.

Mr. Pilgrim — I would ask Mr. Peffer what season of the year he would do his top grafting.

Mr. Peffer — In the spring, of course.

DEVON CATTLE — THE BEST OF ALL THE BLOODS.

By Dr. E. A. WOODWARD, Sun Prairie, Wis.

Mr. President — In a country extending from latitude twenty-four degrees thirty-five minutes north, to the Arctic Ocean, and from sixty-six degrees forty-five minutes to one hundred and twenty-four degrees forty-five minutes west longitude, embracing every variety of soil and climate to be found upon the habitable globe, we could hardly suggest general, much less special, rules which would apply either to the herdsman or the tiller of the soil.

But when we confine ourselves to the limits of our own state, we are enabled to be more explicit, give reasons for our opinions, and confine our statements more to matters of fact. Let it then be understood that what I may say upon the subject assigned me, and whatever comparisons I am necessitated to make, are intended only for the latitude of Wisconsin.

The only things that I regret are that the honorable secretary of the State Agricultural Society did not select a more able representative, and that the time was so limited for the collection of materials to elucidate the subject.

Since the partial, and perhaps I might say general, failure of

the wheat crop, our farmers have been necessitated to change to other and more fruitful sources of wealth; and not the least of these is the breeding and rearing of neat cattle, which is a prehensive movement towards the production of beef and the products of the dairy. Few farmers are either able or willing to experiment with the different breeds of cattle for a term of years in order to ascertain their adaptability to a certain locality, and are forced to select from some one of the different families, which, according to their best judgment, will fulfill all the requisites of a well-paying herd.

In making this selection, the shrewd, economical farmer will take into consideration the peculiarities of the climate, the nature of the soil, the cost of producing the materials for subsistence compared with other states, and his facilities for feeding and shelter; he will then make his selection as he would a partner for life.

A firm constitution, a beautiful figure, an intelligent countenance, a docile disposition, a hazel eye, a white skin, and red cheeks. The breeders of thoroughbred Devons claim that they are better adapted to this locality for general purposes than any other breed.

1st. Because they are more hardy, more remarkable for longevity, retain their powers of reproduction much longer, and have attained to their present excellency with constitutions as unimpaired as when roaming upon their native hills.

2d. They are more symmetrical in form, possess more beauty and grace of movement, are more docile in disposition, and produce a larger quantity of flesh for the amount of feed consumed.

3d. They have never been equalled in this country by any other variety of full bloods for their milking qualities and general purposes of the dairy.

4th. They have been bred for their intrinsic value, and less for speculative purposes, and are sold at less prices according to their worth than either Short-horns or Jerseys.

Let us spend a few moments upon their history. The Devons are one of the oldest races of domestic cattle known to history, and the distinction between a race and a breed is defined as follows:

Races are varieties moulded to their peculiar type by natural causes, with no interference of man, and no intermixture of other varieties, that have continued substantially the same for a period beyond which the memory of man runneth not to the contrary.

Breeds are such varieties as were originally produced by a cross or mixture, and subsequently selecting the best specimens for breeding purposes. There seems to have been three races of ancient cattle in England, to wit, the long horned, the middle horned, and the polled — the middle class representing the cattle of Devonshire. Youatt says: "The native inhabitants were proud of their country and prouder of their cattle than choicest professions." When their country was invaded by enemies, they fled to the mountains, taking with them their cattle, and by occupying places that were invulnerable, both were preserved; the races of cattle in these districts remaining the same from time immemorial. The improvement of this ancient race of cattle which has resulted in the perfected breed of Devons, was commenced about one hundred and seventy years ago.

Foremost in this work of improvement was Mr. Francis Quartly, of the county of Devon, England, and his unprecedented success is shown by the fact that nine-tenths of the pedigrees of the present herd in Davy's herd book are traced directly back to the old Quartly stock. Twenty-seven out of twenty-nine of the prize bulls mentioned in that work are descendants of "Forrester" (46), and twenty-nine out of thirty-four prize cows mentioned are descendants of the cow "Curly" (92), both bred by Mr. Quartly. The first importation of improved Devons into the United States was in 1817, six heifers and one bull, "Tamus," presented by Mr. Coke, then Earl of Leester, to Robert Patterson, Esq., of Baltimore, Maryland. "Tamus" was purchased by Mr. Coke when less than one year old for fifty guineas.

Messrs. S. & L. Hurlbut, of Winchester, Litchfield county, Connecticut, commenced their herd in 1819 from a pair procured of Mr. Patterson —"Holkam" (115), and "Fancy" (709).

The system of breeding Devons has not been of a hot-bed nature; while others, by being forced to early maturity, have reached their zenith, the progress and improvement of Devons has

continued steadily onward, not only retaining all the estimable qualities for which the early herds were noted, but are to-day exhibiting proportions that astonish even the breeders of Short-horns.

"Banister" (734) weighed at eight months old six hundred and thirty pounds.

Barefoot (732), bred by the Hon. James Buckingham, Zanesville, Ohio, weighed at two years old fourteen hundred and twenty-eight pounds.

Betty 2d, bred by I. S. Newton, Esq., of Verona, Dane county, Wisconsin, two thousand pounds at four years old.

The Devons do not mature as early as the Short-horns, but are much more remarkable for longevity, it being not an uncommon occurrence for a cow to retain her breeding and milking qualities until over twenty years old. The circumstance of their not maturing as early as the Short-horns, proves them better adapted to this locality. The old adage "Soon ripe soon rotten," seems to be literally true of the latter. The common course which the farmers of Wisconsin pursue to produce beef is to graze in the summer, in the winter feed simply hay and straw until two and a half or three and one-half years old; they are then fed with a suitable amount of grain with hay or straw for six months, making them marketable for beef at three or four years old. To explain this position better than by any language of my own, I read from the Cyclopædia Britannica, article Agriculture, page 388: "The distinguishing features of the Short-horns are that when properly treated they get sufficiently fat and are remunerative at or even under two years old; if they are kept lean to that age their excellence is lost; they then cost more money, consume more food, and do not fatten more rapidly than bullocks of slower growing and more compact breeds." Lest I weary your patience I hasten to consider the 4th proposition, to wit: They have never been equalled in this country by any other variety of full bloods for their milking qualities and general purposes of the dairy. "Beauty" (523), bred by Messrs. S. & L. Hurlbut from "Fancy" (709) and "Exchange" (197), produced sixteen pounds of butter per week through the month of June, 1850.

Mr. Coleman, in his European Agriculture, says the most productive cow in butter which I have found was a north Devon, which for several weeks in succession, without extra feed, produced twenty-one pounds of butter per week.

Mr. Wainwright, of Rhinebeck, N. Y., made fourteen pounds of butter per week from "Helene;" F. P. Holcomb, of New Castle, Delaware, nineteen and one-half pounds of butter per week from "Lady;" the Hon. H. Capron, formerly from Illinois, twenty-one pounds in nine days from "Flora 2d;" C. P. Holcomb, New Castle, Delaware, an average of fourteen pounds nine ounces per week for twelve weeks in succession; H. L. Cowles, Farmington, Connecticut, sixteen and one half pounds in ten days. If the above record can be excelled by any other breed of full bloods that are recorded or recordable, we will yield the palm. We now come to the 4th and last proposition, namely, the "Devons" have been bred more for their intrinsic value and less for speculative purposes than either Short-horns or Jerseys. The first part of this proposition is readily proved by the fact that thoroughbred Devons from the best herds can be purchased at a much less price than other breeds of even less value, one reason being they can be reared at much less expense. The tendency to speculation in the American people is probably greater than in those of any other nation, and at present pervades almost every branch of industry, and the main reason why we hear so little opposition to this practice either from the pulpit or the forum is that too many men are living in glass houses.

I crave your indulgence while I make one or two illustrations. Much of late has been said and written by breeders of cattle and tillers of the soil against the policy of the State Agricultural Society giving purses to the owners of running or trotting horses, claiming its immoral tendency in fostering betting, gambling and deception. Now, I am not disposed to argue this question except by way of comparison. It seems, however, to have at least one merit in it: there is no deception. The colt is purchased for certain qualities or formations which he possesses for a "trotter;" he is reared and trained for a "trotter;" no expense is spared in feeding, grooming and in procuring professional drivers to de-

velop his speed; at our annual fair he enters the list of competitors for the prize offered to "trotters;" by his powers of endurance, his even stride and propensity to stay, wins the race; and we read from the bulletin board on the stand, 2:31. He is now an expensive luxury in which none but the wealthy can indulge, and is sold for two thousand dollars. Not for his qualities as a horse for general purposes, not for his kindness as a family pet; he took the prize as a "trotter," and was sold as a "trotter," and proved his ability before honest judges and gazing thousands.

Not let us for a moment leave the race track and take a stroll through the cattle department. From a large placard we read, *Improved Short-horns* — upon a little card attached to the stall is printed, *Duchess of Geneva*, with her calf; we arouse this prodigy, and find him labeled *Prince of Wales*, six months old, weight seven hundred pounds. The hurried respiration of both dam and suckling indicate they are suffering from plethora. We ask ourselves from whence does this royal bovine receive his nourishment; the udder of the dam is small and filled with fat; no abdominal foramina or tortoise milk veins indicate that it had ever been distended with the lacteal secretion, yet the osseous structure of both is shrouded with fat; we exclaim, great is the mystery of cattle breeding. But this mystery is soon partially solved. A little way back from general observation, stand two first class grade cows that have acted in the capacity of wet nurses to his *royal highness* for the past six months, and they have proved their quality. We have hardly time to finish our observations before the blue ribbon decks the horns of the *Princess* and the neck of the *Prince*, and these two animals draw from the treasury of the State Agricultural Society forty-five dollars as the best breed for general purposes; the young *Prince* is sold to an honest farmer for five hundred dollars, but the wet nurses are not thrown in; they are kept for another five hundred dollar *Prince* at the next State Fair; there was no betting or gambling in the transaction, but there was gross deception, and the agricultural society, to use a legal phrase, is *particeps criminis*.

Now, for the benefit of all breeders, and in particular for farmers who purchase animals for this purpose, I quote again from

the Encyclopædia Britannica, article Agriculture, title Breeding, page 390:

We must here protest, says the author, against a practice by which Short-horn bulls are very often prematurely useless. Unless they are kept on short commons, they become unserviceable by their third or fourth year. Instead, however, of counteracting this tendency, the best animals are usually made up, as it is called, for exhibition at cattle shows, and the consequence is, they are ruined for breeding purposes. Care should be taken, in the case of all breeding animals, never to exceed that degree of flesh which is indispensable to perfect health and vigor.

Suppose some one of the members of the horticultural department of this convention should exhibit to us the seeds from a cucumber, taken from a vine that produced cucumbers eight inches in length, fit for the table on May 1st, in the same year they were planted, and this, too, in the northern part of Wisconsin, with unimpeachable testimony of its truth; and as a matter of compliment to the members of this convention, would dispose of a limited number of these seeds for the modest sum of five dollars each. Now, the idea of cucumbers on the 1st of May. I think I would take one, and there would probably be others with more money, and not less credulity, who would make a larger investment. I turn to my friend upon the right, and say to him, "How is this cucumber business? Is there anything in it?" "Of course there is," he says. "The man that raised that cucumber is a neighbor of mine; he has one of the finest hot houses there is in the state; it cost over ten thousand dollars. He pays his head gardener $50 per month, and it takes as much fuel to warm the institution, in proportion to its size, as they use at the insane asylum, and it is a paying institution at that. He took one thousand seeds from that cucumber, upon which he will realize five thousand dollars. This amount will pay for his fuel, pay his gardener's wages, and leave a handsome per cent. upon his investment."

Now with our facilities for cultivation, how many crisp cucumbers would grace our tables on the first of May, and about how many seeds should we have to dispose of at the next convention?

Is this picture overdrawn? Let us see. On the 10th of September, 1873, was sold at public auction the herd of Mr. Campbell, of New York Mills, near Utica, when 108 animals realized $380,000. Of these ten were bought by British breeders, six of which averaged $24,517, and one of them, Eighth Duchess of Geneva, was bought for Mr. Pevin Davies, of Gloucestershire, at the unprecedented price of £8,120, or $40,160. At this present time the intrinsic value of all these animals has been tested by the scales of the butcher, and allowing to each animal the heaviest weight, and sold at the highest price, we have a deficiency of $371,000. This is not all. Suppose we allow ten per cent. for insurance and interest on the investment, and we have a deficiency of $647,000 — $90,807 more than the assessed value of all neat cattle in Dane county at the last assessment.

Wall street has its bulls for gambling in gold and stocks, boards of trade have their bulls for gambling in wheat, and breeders have their bulls for cattle gambling, and the honest farmer pays the bills.

There are about seventy breeders of Short-horn cattle in the state, and over forty of pure blood Devons.

Now I propose to arraign the officers and managers of the State Agricultural Society for favoritism to the former and gross injustice to the latter.

1. In awarding individual premiums to all varieties of cattle except Devons, and thereby excluding forty breeders of pure blood Devons from competition at the state fairs.

2. In awarding premiums to a certain class of stock, without taking into consideration constitutional stamina, anatomical structure, symmetry of form, fineness of fibre, their qualities for the dairy, or any other desirable quality, except the amount of adipose matter they had been forced to carry by surfeiting at the meal chest, and then doped with saccharine syrup until an impaired constitution and impotency was the result, making it as impossible for them to produce a healthy progeny as a parent healthy offspring with a system tainted with scrofula, a gouty diathesis from excesses at the table, or a softened brain from the fumes of alcohol.

3. In (it would seem for no other purpose than to stigmatize the race) awarding premiums to animals called Devons, with black noses, black feet, black legs and black horns, circumstances as impossible to find among pure blood Devons as a leopard that had changed his spots or an Ethiopian his skin.

The breeders of Devon stock, many of them life members of the society, do not come as supplicants to beg for justice; they *demand it;* and can the State Agricultural Society afford to lose the patronage and influence of forty of the best breeders in the state and sustain itself? This question will be answered by the action of the society the present season. With equal privileges they are ready to meet all others in competition. They will meet them upon the fair grounds with their jars of golden butter and creamy cheese; they will meet them at the shambles with finely mottled sirloins that have always been the delight of the epicure; they will meet them with their flocks and their herds, satisfied to abide the decision of an enlightened public, fully believing "their castle's strength will laugh a siege to scorn."

Mr. Babbitt — The reason some of the members of the State Agricultural Society insisted on giving a very little more to the Short-horns was, that there was so much more money invested in them, and so many more breeders. I don't think the catalogue will show that any great injustice has been done to Devons in this state.

Mr. Newton — From 1858 to 1878, inclusive, the agricultural society of the state of Wisconsin has paid as much in premiums to Short-horn breeders as they have to the breeders of all other races of cattle combined, lacking $130. If you will give the same encouragement to any one of the other various breeds of cattle that you have to the Short-horns, twenty years from to-day you will not find half as many Short-horns in the state as of the breeds you thus encourage. This society sets the example to the county societies, and in this way the breeding of Short-horns has been encouraged above its merits.

As to the milking qualities of the Devons, they are not to be

excelled, I think, by any other breed of cattle, taking into consideration quantity and quality of milk.

Sec. Geo. E. Bryant — Before we come to the general discussion, I would like to ask this question: I received a letter from the commissioner of agriculture saying that it had been reported to him that there had been discovered by some one in Wisconsin, a grass called the paper grass; and he wanted to know if I knew anything about it; that it was far better than straw or any of the things generally used for making paper.

Chester Hazen — In this dairy country, where the dairy interests far exceed the beef products, it seems to me dairy stocks should be noticed, at least, in our agricultural conventions. While each particular breed of cattle fills their place in the list for the several purposes for which they are bred, it cannot be denied that the milking breed, or dairy cows, are the stock for the common farmer of Wisconsin.

As there have been many papers and addresses presented to our conventions on this subject, I will confine myself to a few of the very many statistics of the products of the Ayrshire cow. I will give the result of four months' milking of the Ayrshire cow Flora Temple, bred by J. F. Converse, of Jefferson county, New York, and sold to J. F. Brown, Providence, R. I., who owned her when the following results were attained:

Weight of cow, 1,075 lbs. Dropped calf April 25, and in May gave an average of 24 quarts of milk per day, and a total of..	1,582 lbs.
In June, gave an average of 29 quarts of milk per day, and a total of.....	1,848½ lbs.
In July, gave an average of 26 quarts of milk per day, and a total of.....	1,714 lbs.
In August, gave an average of 24⅓ quarts of milk per day, and a total of.....	1,601 lbs.
	6,745½ lbs.

Six times her live weight in four months, and 535 pounds over!

Mr. Lawrence, of Massachusetts, owned an Ayrshire cow that made 240 pounds of butter in twelve weeks—an average of twenty pounds per week. J. M. Smith, Esq., of Green Bay, president of

the Horticultural Society (perhaps some gentleman present may be acquainted with him), made 371 pounds of butter from his Ayrshire cow Jennie in one year.

I will give a statement of the production of an Ayrshire grade — the cow Old Creamer, owned by Gen. S. D. Hungerford, of Adams, Jefferson county, New York. Her live weight was 1,080 pounds, and her best yield was 303½ pounds of milk in three days. She gave an average of ninety-six pounds per day through the month of June. Old Creamer is three-fourths Ayrshire. I will give results of some of the cows imported and bred and owned by J. F. Converse, of Jefferson county, New York. The Ayrshire cow Rosa gave sixty-two pounds of milk per day, ten consecutive days in June, on grass feed alone. Dolly Varden gave forty-five pounds of milk per day when two years old. The cow Jane Pender, bred by J. F. Converse, gave in January her live weight in milk in twenty-four days. The cow Ayrshire Lass gave seventy-eight pounds of milk daily, and Red Rose gave eighty-four pounds daily. The two last cows named were milked for the trial at New York state fair.

It is estimated that the consumption of milk and its products is four times as much as that of beef, and that the product of a good dairy cow per annum is equal in value to a four year old bullock sold for beef. From this we can form some idea of the value of first class dairy cows to the Wisconsin dairyman.

In order to present this dairy business to this convention, I wish to make some estimates that will approximate very closely to the aggregate product of the dairy. We have at this date not less than 18,000,000 cows in America. At an average of fifty dollars to the cow this would amount to $900,000,000. Of this amount Wisconsin proposes to go in for her share.

February 6.

AFTERNOON SESSION.

A Talk on Pruning and Grafting.

Mr. Olds — I would like to ask Mr. Peffer what he would do with these young, thick heads, like Perry Russet and Northern Spy. Would he let them take their natural course?

Mr. Peffer — All those that are thrifty, upright growers, instead of trimming from below up, I'd trim from the top down, so as to make the limbs spread out.

Mr. Olds — Take out any limbs to trim them?

Mr. Peffer — Yes, some, but not so as to expose the limbs, that have been shaded by that thick foliage, to the sun at once.

Mr. Olds — Does not your experience lead you to conclude that many of that class of trees that seem to have such a thick headed habit require that system, to be allowed their natural way to a great degree?

Mr. Peffer — All the foliage grows upwards, and on the Northern Spy and the Perry Russet the leaves as a general rule are peaked; they always grow straight up; the consequence is they do not form blossom buds, and even if they do the shoots take all the sap, so the blossoms will fall off before they set.

Mr. Olds — I want to bring out more explanation in regard to the process of root pruning large apple trees that are in a thrifty, vigorous condition and do not bring much fruit like the Flushing Spitzenberg. It never bears much, but it is an excellent tree.

Mr. Peffer — If a tree is growing too fast, and you do not want to touch the tops, you want to prune the ends of the roots, not so as to take big roots, but a little on the outside of where the limbs spread, either by cutting them off with a spade, or take a good plow with a sharp coulter and cut deep enough so as to cut the ends, so as to stop the flow so as to make too much root; to sicken the tree in fact; that is all.

Mr. Olds — The question with me in regard to that has been, whether it needs to be retarded in its growth or some sort of a fertilizer applied to it different from what the soil produces.

Mr. Jordan — In regard to unfruitful fruit trees that become large enough to produce and do not bear, I find there is a growing habit among some men who are raising orchards, of girdling the tree, thereby bringing it into immediate fruitfulness. There is a little risk attached to this if it is not done at the proper time; it may kill the tree, yet if it is done at the right time you may strip three feet of bark off the body of the tree; peel it entirely bare and it does not kill the tree.

Mr. Kellogg — What time is that?

Mr. Jordan — It is some time about the first of June. I think it would be about the middle or last of May.

Mr. Field — When the new bark is forming on the inner part of the tree.

Mr. Jordan — Anything that injures the life of the tree produces fruitfulness. It is the nature of all plants to propagate their species before they die; consequently, if you do anything, root-pruning answers the same purpose, though it is more difficult. I would advise those who are going to practice this, to take a limb or a number of limbs and strip off the bark. Some say you need not take much, a quarter of an inch answers the same purpose as a larger space. It simply stops the flow of sap and produces fruit buds; the sap that is used in some way in the bark is used in forming fruit buds. There was a question or two asked me since I made the remark about grafting early in the spring. Some do not seem to understand it fully and doubt it a little. It is a new idea to graft in January, February and March. I think I am safe in saying that any man who is an experimental grafter, and understands it, will graft the first warm days that come. I do not care how soon it is. Do it just as he does in the spring, and he will say he never had better success. I never have failed with any of my early grafting. I have done some already this season.

Mr. Field — You would not do it when the limbs are frozen?

Mr. Jordan — No, sir; any day a man can work out comfortably. Another thing, if you graft at that season of the year, and practice as some parties do, making your wax with tallow, your work will be a failure. I never use tallow in out-door work except in the ground. Instead of tallow use linseed oil to thin your wax. I will give the receipt: Three parts of resin, one of beeswax; linseed oil sufficient to soften it, so that it will pull and work (like taffy candy does in the house) out of doors, the way you want to use it. I never use paper, cloth or anything but the clean wax, pull it into a ribbon and wind it around, covering all the wound and the graft. An old orchard man asked me a moment ago, whether in cutting the wood it did not receive damage from freezing. I told him no, because the wounds are all covered

with wax, and it is no more liable to injure it because it freezes hard, than if there had been no wound made. I grafted a number of seasons when the mercury went 20 degrees below zero, and never had better success than I did with that grafting.

Mr. Haight — I would like to ask if the gentleman would propose the same with plum or cherry trees that he would with apple?

Mr. Jordan — I have been successful with grafting the plum into the wild plum early in March or April; nearly as successful as with the apple. I think my cherries grow about as well as the plums. I think that nine-tenths of those that are put in graft of the plums and cherries grow. I seldom lose a graft that I put in early of the apples. Late grafting almost always fails. Another thing, some farmers think that nobody but an experienced hand can graft. That is a mistake. Any man or boy, if he is a common work hand, no matter how clumsy he is, can graft with very little practice. One summer I did all my grafting because I was so particular. Last year I had a German boy about 16 or 17 years old, who was rather a stupid fellow, and I set him at work at it, and watched each day or part of a day, when I would go back to see if he was doing it just right. I found a good deal of fault with him about some trees, but still his grafting did as well as mine. He was a common hand, and never did any before in his life. It is the way you prepare your wax and put it on, more than any other one thing.

Mr. Peffer — You would have to be particular in getting the bark united?

Mr. Jordan — Yes, but still they have so long a time, a month or six weeks, to form this callous, where it is grafted early, and that is going on every pleasant day; consequently they are united before it becomes time for the sap to flow.

Mr. Olds — Did you ever use cloth?

Mr. Jordan — Yes, I have used paper and cloth and have every time fallen back to using the plain, simple wax. When I melt the beeswax and resin together till it is thoroughly melted, I take my pan or dish off the stove and go out into the yard, and I then commence to pour in my linseed oil and stir as I pour in.

It is a sound general principle that the state ought to support, with public money, only such institutions as are erected to carry out its own secular ends and aims. These ends and aims may be classified under the following heads: the protection of its borders, commerce, honor and property; the protection of morality, personal liberty and life; the administration of its laws and economy: the development of its resources and prosperity; the education of its people in keeping with its idea as a secular institution. The erection and support of institutions to carry out these ends is the duty of the state; but they must be in every sense public and not private. A public institution, within the meaning of this principle, is (1) the property in every part of the state; is (2) under the complete control of the officers of the state; is (3) a part of the machinery of the state, and (4) is supported by the state and by none else.

If this be true (as what fair minded man shall say it is not?), it will follow inevitably that no part of the public taxes can be rightly used in support of private institutions.

Is it not true that the remission or exemption of church property from taxation is exactly equivalent to a grant of money to such property to the amount of the tax? If it is, then the state is using public money in aid of private enterprises.

Churches and church schools, church asylums and hospitals, church cemeteries and graveyards, theological schools and sectarian colleges, convents and nunneries, and every institution belonging to churches and to religious societies, are each and all private, and nothing but private affairs. The state has neither entire control nor use of them, and should not contribute one cent to their support. Yet the state does in fact so contribute whenever it remits the tax which would fall upon them if they were secular societies.

I am aware that much sophistry is employed to bring church property under the category of public institutions. But it is easy to silence these specious arguments by an appeal to the use of the word "public" in other relations. We all recognize the meaning of the word when we speak of public schools, public roads, public parks, public lands, public jails, public officials,

public documents. Now let the same common sense be applied to the case before us, and this kind of imbecile and empty argument will crumble away.

A public institution is one in which private persons have no rights of control, except through the forms of government provided by the state, that is, through the use of the ballot. That definition excludes church property from any use of the name "public." If objection be made that churches are a public *good*, and therefore should be exempted from taxation, let it be remembered that the state, as such, has no ground of right to discriminate between *different kinds* of good. If churches are religious or moral benefactors of society, banks, horse railroads and industrial enterprises are also benefactors in another sphere of good. The state has no solid and equitable right to discriminate among different "goods," in favor of religious or moral. In fact, by parity of reasoning, all persons, things and institutions which are not bad in their effect upon society should also be exempt from taxation.

Ought not all institutions and all enterprises to be exempt from taxation upon equal terms? We think they should. Therefore if a church be exempt because it confers a moral or spiritual benefit upon society, all other enterprises should also be free from the burden of taxes, if it can be shown that they exert a material benefit. The state, which ought to be strictly secular, should make no discrimination in favor of any one good over every other.

Further, we must guard against thinking of churches, in our time, as belonging to public philanthropy. Allowing all we can (in justice to the facts) in favor of the good churches exert upon the community, we must still consider that they are more nearly private societies than public charities.

Then, again, if objection be raised against the taxation of churches because they are benevolent and not money making institutions, let it be considered that this is not strictly the case. The churches make money for the minister and choir, and sexton, while, as regards a large number of those who belong as members, such membership is a source of commercial credit and emolument.

Even although we ought not to say that the ministry is strictly a commercial undertaking, we must not overlook the fact that it is one of the professions, by the exercise of which, a large number of persons are supported in comparative ease.

It is frequently urged that churches are entitled to privilege because they are unproductive. Passing over the fact that pews are as much property as houses, and are as such held for a benefit derived to pew owners, let us recall the fact that while productiveness may be part of the commercial basis of assessment, the basis of taxation is not production but protection. It is not a question, Does the church produce anything? but is it protected by the state?

It is not likely, however, that the public would object to pay indirectly for the support of churches, simply because two or three people derive an income from them. There is, however, another more serious reason, of a commercial kind, which will present itself to the thoughtful mind as a very strong argument against church exemption. It is this: churches, as corporate bodies, acquire immense political power through the control of property.

The experience of the past in Europe shows us that most of the political power wielded by the church has resulted from the possession of landed estates of immense size and value. The pressure of this power led in England to the confiscation of the monasteries as a measure of public safety. The same danger threatens us in America.

Increase of church property is much greater than increase of church membership. In all cases of rapid church accumulation there has been these steps in society — poverty, pauperism, confiscation. The need of Ireland is confiscation to-day.

It cannot be denied that wealth gives political power, and such power is all the more dangerous to the public safety when it is in the hands of corporations whose business in life it is to promulgate opinions. Opinions should stand or fall by their own weight, and the state is laying the axe at the root of its own fair tree, when it gives to any corporations the power to become strong at the expense of the public purse and the public weal.

Public justice, then, as well as public safety, demands that no political power shall be gained at the expense of honest taxpayers. If the church were indeed a "kingdom not of this world," the world would be safe in letting it go untaxed; but every year, and all past experience, show conclusively that ecclesiastical power means to make the best of both worlds, by securing all temporal advantages a short-sighted legislation may put in its way.

But the exemption of church property from taxation is not only a breach of democratic policy in respect to non-intervention; not only a breach of democratic policy in respect to the just uses of public money; it is also a breach of democratic policy in regard to the fundamental basis upon which taxation itself rests.

Undoubtedly it is a grand general principle that taxation should be equal, just and fair. The exemption of churches from taxation is a breach of public morality. Unexempt persons are *thrice* taxed. (1.) They are taxed to support the state. (2.) They pay an increased tax because others are exempt. (3.) They are taxed to pay damages from riot or mob to these exempt institutions.

Further, the exemption of churches from taxation is opposed to a fundamental principle of taxation, viz.: that it shall rest upon common consent.

The constitution of this state (Wisconsin) expressly declares: "Nor shall any man be compelled to support any church, or to maintain any ministry, against his consent." It further declares, that "The rule of taxation shall be uniform." It further declares, "No money shall be drawn from the public treasury for the benefit of religious societies."

All of which declarations go to show that the spirit of the constitution is on the side of public justice, a public justice expressed in this phrase: "No man should be compelled to support institutions of which he disapproves." Yet in the face of this principle of justice, it has been objected to this movement for the taxation of churches and church property, that "if church property be taxed, the money will have to come out of the pockets of the God-fearing man, while the atheists and the socialists will go scot free." Now this does not seem to us so much an objection as a

recommendation. The money ought to come out of the pockets of "God-fearing men," that is, we suppose, of church members, and not out of the pockets of atheists, socialists and other indifferentists. If the church is mainly for those who worship at it, it should not be supported directly or indirectly by those who do not worship at it.

The constitution of the United States in its spirit, and the constitution of most, if not all, of the states declare, "No man can of right be compelled to support any place of worship, or to maintain any ministry, against his consent." (Const. of Penn.)

Now exemption of churches from taxation is indirect taxation of the whole community, including, of course, atheists, socialists, etc., for the support of the churches. The churches are a direct charge upon the community, supported by indirect taxation.

If churches were in general respects self-contained and self-supporting, there might be slight reason why they should be exempted, but they are not. They need protection by the custodians of public safety. They can claim indemnity in case of destruction by mobs. They can call out the militia or the fire department in case of fire. In fact, they stand in the same mutual relation to the community as do other private properties.

And the proportion of the expense of maintaining this protective system on behalf of churches falls pro rata upon atheists, socialists, and their allies. That is to say, men who are not consenting parties to churches, and to church principles and purposes, but opposers to them, are compelled to contribute, by taxes, their share of this protective expense, which is unconstitutional.

The disestablishment of the Irish Church a few years ago by the people of Great Britain, found its (*raison d'etre*) justifying reason in the fact that the church of the minority was supported by the majority of the taxpaying people of Ireland. So here. The majority of the American people are non churchgoers, and should not be made to pay, directly or indirectly, for the church of the minority. Yet the taxation which should have been borne by the church-going minority, aggregated last year not far from ten millions of dollars.

The following additional objections have been from time to time

raised against the taxation of churches and church property, viz: "Church property never has been taxed in the past." "That even the heathen abstained from taxing the temples of their Gods."

Now upon questions of principles, no argument can be valid that is based upon precedent: e. g. Previous to 1740 no one thought negro slavery was wrong. Previous to 1775 no one held "taxation without representation" to be a crime. Mere precedent is no argument, nor is any precedent valid unless it is corroborative of other and stronger reasons. The fact that the heathen did not tax the temples of the Gods is not now an argument which can find a place in American thought, for the simple reasons that the temples of the Gods were the property of the state, and Paganism in Greece and Rome was the religion of the state. Our churches are private property and we have no state religion. For a heathen state to tax its own temple would be absurd, merely exchanging money from right hand to left. But besides, American usages differ from heathen ones, simply because we are not heathens, though we may have retained a heathen custom or two, among which may be the exemption of churches from taxation.

Another objection has been raised against taxing church property, "That it is sound public policy to exempt all institutions which tend to ameliorate crime, pauperism and misery." The fallacy of this argument is, that it proves too much. If the state supports churches by indirect taxes because they are real conservators of society, then it ought also, on the same principle, to build churches and pay ministers. The state has its own machinery for the suppression of crime and misery. And if it is true that the state should exempt from taxation such social factors as directly lessen crime and misery, then surely every honest and well-ordered home, every temperate and law-abiding citizen, every well-managed factory, every gymnasium, and every one of a thousand other things which by their influence produce public morality, should likewise be exempt and privileged.

But there is one other aspect of this matter which cannot be overlooked here, viz: It is held as true by very many prominent students of practical economy, that church charities do rather

increase than decrease pauperism. Let this remark stand for what it is worth.

Again. Churches should no longer exempt from taxation upon principles which apply mainly to the case itself. Their exemption from taxation is very injurious to religion. It is a wounding of religion in the house of its friends. Religion professes to come from God to men. It should then present a God-like and noble front. It should appeal only to the very highest impulses; it should use only the very grandest implements. It should be free from all sordid ambitions and all worldly desires. It should not only recommend itself to believers, but also — and more fully — to unbelievers. It should leave the scoffer nothing at which to scoff, the scorner nothing to divide. It should be "free from the very appearance of evil."

But as a beneficiary of the state, as a pauper upon the public pocket, the church detracts from its security, and lessens its hold upon the respect of men. Instead of coming among unbelievers as a messenger of God, bringing gifts, it comes as a beggar, asking the poor pittance of remitted taxes, or — what is worse — as a real estate speculator and land-grabber.

Let the church take warning, for if it keeps its taxes from Cæsar, the world will soon question as to whether it does not also keep back its dues from God. If the church is not exactly on the defensive, as regards the mass of thoughtful people composing the majority of Americans, it is at least "upon its good behaviour," and cannot afford to throw away one chance of appearing at its best. And indeed, if it has a priceless treasure to give to men, let it not charge them the paltry pittance of the taxes. "Knock and it shall be opened," saith the Lord. "Knock and pay two pence," saith the Chapter-Board. Let all honest men and honest churches pay their taxes.

"Behold!" says Paul, "thou art called a (Christian) and art confident that thou thyself art a guide to the blind, a light of them that are in darkness; thou therefore which teachest another, teachest thou not thyself; thou that preachest a man should not steal, dost thou steal" — thy taxes?

To the scoffing cry of the extreme religionist, "What would

real estate be worth in Sodom?" That is, how much of anything worth having would there be if it had not been for religion, I say: Thank God for religion! But does anyone seriously suppose that religion would fall, upon the imposition of the tax list. We have grown *accustomed* to the cry of those who liken us to Sodom and Gomorrah. The defenders of church and state have used the cry before, yet we have dislocated church and state, and both are benefited thereby. Why should we be afraid to do justice. Justice is the foundation of God's throne; let us not fear to make it the foundation of the tax levy. And if the church-goer complains that he has to pay a trifle more to his church each year because of the taxes, let him ask, whether, as long as he is content to do so much for the dissemination of doctrine and the comfort of his pew, he is not also ready to pay a trifle more, over and above these necessities, for *eternal justice?*

The fact is, friends, the whole tax question is one of honor, and who will not be ready to do what honor requires when he is once shown the way?

Instruct your legislators to repeal all obstructions to an equal and just taxation, and be ready yourselves to pay to the state, from which you receive so much, the support which is both wise and just.

Hiram Smith—In our agricultural papers, most of us unfortunately drop something that is very objectionable to others; but in the paper we have just heard, I think there are but few that can object to anything that has been said.

Mr. Field—If any argument were needed why church property, and all other property in the state, should be taxed equally and uniformly, I think that we have heard that argument to-night. We have heard those reasons given in the paper which has just been read before us. I have always believed, sir, that there was no reason for the exemption of any property whatever, except state and national. I have believed that churches, school houses, and all other property that receives protection from the state, should be taxed, and help pay its proportion of the burdens of government. I have never heard, however, a clearer argument.

I have never heard so clear an argument in favor of universal taxation as I have listened to here this evening. It has pleased me much. I trust it has made an impression upon every member of this joint convention, and that we may pass a resolution unanimously, requesting the legislature now in session to enact such a law as to make the burdens of taxation equal in this state.

The gentleman spoke of railway corporations. Now, sir, I see no reason why all of these corporations should not be taxed in the same way that private individuals are taxed. I do not say that I would have them taxed in every town or every county through which these roads pass, as a railway is not a railway in a town or a county. It is a railway as an entirety. It is a railway only as it passes through the state of Wisconsin, and from here or Chicago to the state of New York. But it may be taxed in the state in the same manner that property is taxed in a town or a county, and pay its just proportion according to what it is worth. I cannot see any injustice that would arise in letting the tax be paid into the state treasury for the benefit of the entire state.

Mr. Adams — I desire to offer a resolution, which I have drawn hastily:

"*Resolved*, That it is the sense of this convention that the statutes of Wisconsin, relating to taxation, should be so amended as to require that church property, life insurance companies, and public and private charities, should be taxed in accordance with the provision of the constitution requiring that taxation should be uniform."

Mr. Main — I am glad to hear this subject of taxation discussed; for, if there is any subject that needs it in Wisconsin, that is one. Our personal property, city and village lots, and real estate in this state, is assessed at $406,000,000. On that a tax is levied of nearly $8,000,000. Our railroads are represented by bonds amounting to $205,000,000. On that there is a net profit of nearly $13,000,000 — about six and two-tenths per cent., and those railroads pay less than one-twentieth of what the real estate, personal property, city and village lots, in this state, pay. From an investment which does not net us one-half of what railroad stockholders get, we have to pay twenty times the

amount of taxes that they pay. That is unjust, and should be remedied.

I notice that a life insurance company which receives a net profit of nearly three millions of dollars, pays five thousand dollars tax. I believe it is less than two mills on the dollar of the net profits of that institution. If anything can be more unjust and more unfair than that, I cannot tell what it can be.

I think it is all well enough that our churches should be taxed, and for one I am perfectly willing to do it; but I cannot see the propriety of talking so much on that subject when that is a mere drop in the bucket by the side of the wrongs that our railroad and insurance companies practice upon the people of Wisconsin.

Mr. Jordan — I am not a public speaker, but I wish I was, so that I could tell you well what I think of this subject. I never heard the question of church property being taxed treated as it has been to-night. I am a church man, but I think all property should be taxed equally. It looked a little to me, however, as though the heavy drives were all at the churches instead of the railroad and other corporations.

Mr. Spencer — Perhaps my friend Mr. Gordon is a privileged character in this regard. Occupying the position he does, as a Christian clergyman, he has undoubtedly a right of criticism upon churches which ordinary mortals do not enjoy. And, furthermore, in order to relieve him of any suspicions of complicity with the railroads, I may say that he owns no railroad stock or bonds. I may say, if his preachings are applied to practice, that he is opposed to all systems of dead-heading, even for clergymen; and if he has placed greater stress upon this evil of church exemption, I think he may be excused upon this ground, that the beginning of all the mischief is the church exemption, as furnishing a pretext for claims for exemption of certain kinds of property from taxation.

The Rev. Mr. Speer, of Brooklyn, N. Y., who is probably known to you as a pretty prominent and conservative Presbyterian clergyman, is the author of a book entitled "Religion of the State," which goes over this whole ground very exhaustively, of the relation of religion to the state, and deals with this subject of

church exemption substantially in the same way in which Mr. Gordon deals with it.

Now some of our Roman Catholic fellow citizens are giving their attention to this question, in a very rational way, too, I am happy to say. I happen to have the pleasure and the honor of a personal acquaintance with some of the representative of the Roman Catholic citizens of this state, and especially of Milwaukee, and I have talked with them on this subject, and they are coming to the conclusion that the position which they occupy before the public, in view of the exemption of their vast property, their institutions and their churches, from taxation, is a position which compromises them very seriously in the estimation of the public. I had a conversation, not long since, with a prominent Catholic of Milwaukee, and he said to me: "If you will carry out this principle of universal, equal taxation, we won't raise a single objection; but if you make a special drive at the churches, we object." I said to that gentleman that I believed sincerely that there was no one thing which the Roman Catholic church can do in this country to raise itself in public estimation, that would be so successful and so profitable to the church in every respect, as to come forward and demand equal taxation. I had a conversation, not long since, with an ex-mayor of our city, who is a communicant of that church — a very fair minded, intelligent gentleman — and he said to me that the Catholic church in this country is in a more healthy condition than in any other country in the world; and he ascribed it to the fact that the church and state in this country were so entirely separated. He agrees with me, I believe, and with Mr. Gordon, and with you, that this practice of the exemption of church property from taxation is wrong.

A priest in New York said this system must result, ultimately, in the confiscation by the state of all church property, and he is undoubtedly right.

In regard to railroads, I cannot agree with my friend Mr. Field, for it seems to me that if the principle of taxation is protection, the tax should be paid where the protection is received. That protection is given in every part of the road throughout the entire state, in the towns and counties, and the expenses are paid there

for this protection, and there is the very place where it should be paid.

Mr. Field — Where do you protect the rolling stock?

Mr. Spencer — That is a practical difficulty. All systems of taxation are attended more or less with these practical difficulties. The principle which I lay down is right.

I most heartily concur in the general sentiment of approval of the address of Mr. Gordon, and I feel that a special debt of gratitude is due him for the position which he, as a clergyman, has taken in this matter.

Mr. Main — I am a laboring man. I always pay my fare at full price, and always ride in the common passenger car. I don't ride in a Pullman Palace car. I know better than to go there, because they would know in a minute that I was a laboring man. They would grin me out of it as quick as Crockett grinned the coon out of the tree. [Laughter.] But what I wish to say is, that it is entirely wrong the way we are taxed. If the railroads should pay in the same proportion as other property, it would be upwards of four million. Instead of that, it is less than four hundred thousand. Gov. Smith seems troubled because he thinks that we are not assessed as high as we ought to be. Now, if he would insist that the railroads should be assessed and taxed like other property in the state, the percentage on our assessment would be low enough. If all property was assessed alike in Wisconsin, we would have less than one per cent., and that would be a credit to our state.

Mr. Gordon — Gov. Smith, I think, has nothing to do with the matter. It rests with the people to set these matters right.

The reason I have laid so much emphasis upon the question of church exemption in this paper is because the railroad and insurance companies have already acknowledged the right of the state to tax them. The churches have not. Our fight is with the churches now. That is the only really exempt property in the state — the only running sore on the body politic.

One other word. Here is the practical question. We want to act on the principle. The methods will take care of themselves by and by. Three years from now the people of this state, if

they choose, can equalize taxation by constitutional amendment. The object is to make it impossible for the legislature to interfere with uniformity. How shall we do it? I think only by educating the people in the principles upon which this taxation is based. We must disentangle from the minds of the people of this state, the fallacy that taxation rests upon productive value. It rests upon the protection that is given, and if you can get the people to understand that you have carried your point when it comes to the constitutional amendment. We must strengthen the hands of those men who are trying to get a constitutional amendment. If the constitutional amendment is carried next year in the legislature, then we must go to work with a will to make it an issue at the election which follows.

I am not able to make a close and concise argument upon the taxation of railways. I am not a man of business in the ordinary acceptation of the term. But on the general principles one man can know just about as much as another man, if his head is right, and his conscience is right upon the question. We have to educate the people upon the principles of taxation.

Mr. Jordan — The explanation is as good as the article, and I think if we can get this before the church-going people in a fair and square way, there will not be much opposition.

Mr. Babbitt — I have always been a little afraid of ministers, though I go to church and pay my pew rent regularly. I will say this is the soundest and the best argument in favor of universal taxation that I ever heard. I wish to draw attention to the transactions of 1877 and 1878, page 203, where I took this position: "Common justice and sound policy demand that millions of property, now exempt from taxation, bear its just proportion of burdensome expenses. Bonded wealth, railroad subsidies, college and church property, share alike with the cottage of the poor the protection of government. Then let compulsion, if necessary, impose equality. It cannot be that the Divine Giver of all good is too poor to pay taxes with his American subjects. And it is apparent, if His self-constituted agents fear bankruptcy if required to walk shoulder to shoulder, in building up a representative government upon the theory of

equal and universal justice, there is danger that the cry of repudiation, when once raised, will usher in a more serious panic than we have yet known. The beautiful proportions of our property idols will shrink to skeletons, emaciated and worthless, and the craven spirit of fear, wild with madness, will sweep over all restraint, and in its wake leave waste and ruin."

That is the position which the other side politically have taken. I would not have dared to do it if I had not lived in a county hopelessly republican. This is the question that we have got to meet, and my friend here, Mr. Spencer, in taking the position that corporations with the power with which you see fit to clothe them, ecclesiastical bodies, or anything else having in their grasp accumulated wealth, are going to throw it broadcast and give it up without being compelled to do so, makes a tremendous mistake. We have got to take hold of this question and meet it fairly. We have got to do it in a spirit of brotherly love and self respect, for unless handled judiciously it will make us a great deal of trouble.

Mr. Delaplaine — Coming from the source it does, this is one of the most valuable documents that has ever been presented to the public. And I hope that some method will be taken by which it can be widely circulated.

Sec. Bryant — I want to express my gratification not only of the paper but of the kind manner in which it has been received. I was called to Milwaukee to the funeral of Dr. Wolcott, and I heard Mr. Gordon then talk. When I came home, I telegraphed him, asking him if he would not come here and deliver a lecture on taxation. He has done it, and it is a source of very great gratification to me that it has pleased the assembly. This is our paper, and will be published in our transactions.

Mr. J. M. Smith — When this question first came up a number of years ago, I must confess that I was opposed to the principle of taxing any religious property, or our public school property, or cemeteries, or anything of that sort.

I went east, and while riding through my native county my brother told me that there was thirty-five per cent. of the entire property of that township, which ran up to over ten millions, owned by church corporations, and exempt from taxation. Said

he, "what is going to be the end of this? They are increasing their property a great deal faster than any private property is increasing, and it looks as if it was going to ruin in the end." It set me to thinking, and for some years past I have been of the opinion that we must, in the end, tax our churches. It will come hard on some of them I know. It ought to be the principle of all the churches, if it is right. We should not do wrong because it is apparently good policy, or that some possible good may come some time. Hence I have come to the conclusion some years ago that this question must come before us and that we must decide in favor of taxation, not only of our churches, but every other species of property that claims protection from the government. If it wipes out some of our churches, let them be wiped out. I will close by seconding the resolution.

Sec. Bryant — I am a little afraid of that resolution. Not on my own account, because I would go a great deal farther than most men. There is one word in that resolution about charitable institutions which might be misconstrued. It might mean state public charities, and I would rather not have anything of that kind go in, for while I would be willing to have everything in the state taxed except the public graveyards, I do not think this convention is quite ready to indorse that yet. In the common acceptation of the term, the public charities of the state means the blind asylum, insane asylums, etc. I do not want anything there that should be construed to mean them, unless you really intend it.

Mr. Anderson — During this session of the legislature, I have received a good many letters requesting that there should be a law passed prohibiting double taxation of real estate where the owner of a farm and the holder of a mortgage upon it both pay taxes. Now if there is any man in this house, or any man anywhere that I can find, who can tell me how they shall prevent that double taxation, I would pay him five dollars an hour for his time. There is no lawyer in the city of Madison that I can find who can tell me how to prevent that. There is a large portion of the least productive property in this state that is doubly taxed. There is one important point in the equalization of taxes.

Amend your constitution as you please, and you do not reach that point.

The resolution does not cover one-half the exempt property. Look over your statutes and you will find that there is a large quantity of other property, that the resolution does not touch, that is exempt.

In regard to railroad taxation, I disagree with a good many of my farmer friends. You cannot tax railroads as other property, and do justice to all sections of the state. Milwaukee, Janesville, and other places, would get a large amount of railroad property for local taxation, and a town where no railroad strikes would get none. Now it goes into the state treasury, and all receive the benefit equally. You cannot tax railroads or telegraphs as other property, and do justice to the community. If you take them as other property, then their property must be taxed where it is located. The rolling stock must be taxed where the company is located.

Mortgages may be transferred before the assessor comes around. You cannot tax mortgages held by nonresidents. You cannot permit the owner to take the amount of the tax that the mortgage ought to pay from the tax on his farm. Many farms are mortgaged higher than the assessed value, and in that case the man holding the mortgage would have to pay all the taxes. These difficulties all come up. This is a very difficult question. I want you to understand that no man can solve this whole question. Those who think they can do justice will find they are very much mistaken.

Mr. Hiram Smith — We are not here to determine just how railroads shall be taxed, or how mortgages shall be taxed. We are here to express our opinion about taxation of all property not directly owned by the state. We shall only befog our minds by dragging in just the manner that mortgages and railroads and insurance companies shall be taxed. Let us adhere closely to the principle whether we should tax all kinds of property not owned by the state.

Mr. Porter — I have been in meetings where there was some opposition. I congratulate the speaker that I really think he has

made more converts to-night than he ever made in one sermon before in his life. [Laughter.]

Mr. Gordon — It isn't often that I get a chance at so many sinners. [Laughter.]

Mr. Field offered as a substitute for the resolution before the convention, the following, which was adopted:

"*Resolved*, That this joint convention unanimously indorses the present movement to amend the constitution of this state so as to require that all property in the state shall forever hereafter be equally taxed, excepting only property owned by the general government and this state.

"*Resolved*, That copies of the above resolution be sent by the president of this convention to the president of the senate and the speaker of the assembly."

Adjourned.

FEBRUARY 6, 9 A. M.

Convention called to order by J. M. Smith, President State Horticultural Society.

A paper was read upon "Pruning Fruit and Ornamental Trees," by G. P. Peffer, of Pewaukee.

The President — How large a limb would you graft, in putting on new tops?

Mr. Peffer — Not over an inch or an inch and a half, at the furthest.

The President — If the limbs are large where they come out from the body, you go out to the end?

Mr. Peffer — Of course; commencing near the top, and going downwards.

Mr. Hays — Do you consider, when you put the graft in the top of the old standard, that the graft will be hardier than it will on the natural root?

Mr. Peffer — No, it won't be any hardier, but the further you get away from the ground the more apt it is to stand the climate.

Mr. Hurd — What is the harm in pruning when there is frost in the wood?

Mr. Peffer — As the frost comes out it deadens the edges.

Mr. Tuttle — I have rarely listened to a paper read before this society that shows so much good sense and practical experience as the paper read by Mr. Peffer. I think we may let that paper go upon our books as perfectly safe to follow. It shows good, practical experience, no theories. It is the result of long continued trial and experience, and it is safe to follow its recommend.

With regard to top grafting; fifteen or twenty years ago, the theory was pretty prominent among fruit men that by top grafting from the Duchess such trees as the Rambeau or the Spitzenberg, we were going to get some valuable fruit, and they would live. I have no question but what they would live longer than one grafted at the roots, but we had a winter that knocked the bottom out of it. You cannot depend on trees grafted in that way. We want a tree with a hardy body, and the tree grafted at the root makes such a body.

There is one practice which nurserymen have followed, and recommend, which I consider one of the greatest humbugs that we ever had in use. That is, grafting on crab roots. All experience east and west is that the crab as a stalk is worthless. There may be varieties of apples that do better. I haven't found any yet. They do well at first, and then dwindle away. If a person wants to get a little fruit right away, he can work them that way, and bring them right into bearing. As an orchard tree, the circulation is improved, and the tree is made tender. It will bear a few apples, and never get any larger.

Mr. Wood — I would like to ask Mr. Tuttle a question. It seems that certain tender varieties can be more successfully grown on top grafted stalks. What should be used for the stalk?

Mr. Tuttle — I would use the hardiest stalk I could get. There is no tree unless it comes from a climate equally as severe as this, that can said to be tested as to its hardiness under fifteen or twenty years.

I was in Kilbourn a few days ago, and a man told me he had a Duchess dying — an old tree. I told him it would be a curiosity to see a Duchess tree die — an old tree, and I went around to see it. It was a large tree, and when I got to it I saw that the body was a Seedling. The tree was top worked five or six feet

from the ground. The Seedling was just about used up. The Duchess tried to live, and there was some little appearance of life in the top; but the body was so near used up that of course the tree had to go. If I was going to top graft any trees now, if I had Duchess trees that I wanted to put into something else, I would work such trees as the Wealthy. Something that I thought would pay.

Mr. Hatch — How would fall Spitzenberg do for top grafting?

Mr. Tuttle — I think that would do very well. I don't consider it near as hardy as the Wealthy.

Mr. Pilgrim — I would ask Mr. Peffer what season of the year he would do his top grafting.

Mr. Peffer — In the spring, of course.

DEVON CATTLE — THE BEST OF ALL THE BLOODS.

By Dr. E. A. WOODWARD, Sun Prairie, Wis.

Mr. President — In a country extending from latitude twenty-four degrees thirty-five minutes north, to the Arctic Ocean, and from sixty-six degrees forty-five minutes to one hundred and twenty-four degrees forty-five minutes west longitude, embracing every variety of soil and climate to be found upon the habitable globe, we could hardly suggest general, much less special, rules which would apply either to the herdsman or the tiller of the soil.

But when we confine ourselves to the limits of our own state, we are enabled to be more explicit, give reasons for our opinions, and confine our statements more to matters of fact. Let it then be understood that what I may say upon the subject assigned me, and whatever comparisons I am necessitated to make, are intended only for the latitude of Wisconsin.

The only things that I regret are that the honorable secretary of the State Agricultural Society did not select a more able representative, and that the time was so limited for the collection of materials to elucidate the subject.

Since the partial, and perhaps I might say general, failure of

the wheat crop, our farmers have been necessitated to change to other and more fruitful sources of wealth; and not the least of these is the breeding and rearing of neat cattle, which is a prehensive movement towards the production of beef and the products of the dairy. Few farmers are either able or willing to experiment with the different breeds of cattle for a term of years in order to ascertain their adaptability to a certain locality, and are forced to select from some one of the different families, which, according to their best judgment, will fulfill all the requisites of a well-paying herd.

In making this selection, the shrewd, economical farmer will take into consideration the peculiarities of the climate, the nature of the soil, the cost of producing the materials for subsistence compared with other states, and his facilities for feeding and shelter; he will then make his selection as he would a partner for life.

A firm constitution, a beautiful figure, an intelligent countenance, a docile disposition, a hazel eye, a white skin, and red cheeks. The breeders of thoroughbred Devons claim that they are better adapted to this locality for general purposes than any other breed.

1st. Because they are more hardy, more remarkable for longevity, retain their powers of reproduction much longer, and have attained to their present excellency with constitutions as unimpaired as when roaming upon their native hills.

2d. They are more symmetrical in form, possess more beauty and grace of movement, are more docile in disposition, and produce a larger quantity of flesh for the amount of feed consumed.

3d. They have never been equalled in this country by any other variety of full bloods for their milking qualities and general purposes of the dairy.

4th. They have been bred for their intrinsic value, and less for speculative purposes, and are sold at less prices according to their worth than either Short-horns or Jerseys.

Let us spend a few moments upon their history. The Devons are one of the oldest races of domestic cattle known to history, and the distinction between a race and a breed is defined as follows:

Races are varieties moulded to their peculiar type by natural causes, with no interference of man, and no intermixture of other varieties, that have continued substantially the same for a period beyond which the memory of man runneth not to the contrary.

Breeds are such varieties as were originally produced by a cross or mixture, and subsequently selecting the best specimens for breeding purposes. There seems to have been three races of ancient cattle in England, to wit, the long horned, the middle horned, and the polled — the middle class representing the cattle of Devonshire. Youatt says: "The native inhabitants were proud of their country and prouder of their cattle than choicest professions." When their country was invaded by enemies, they fled to the mountains, taking with them their cattle, and by occupying places that were invulnerable, both were preserved; the races of cattle in these districts remaining the same from time immemorial. The improvement of this ancient race of cattle which has resulted in the perfected breed of Devons, was commenced about one hundred and seventy years ago.

Foremost in this work of improvement was Mr. Francis Quartly, of the county of Devon, England, and his unprecedented success is shown by the fact that nine-tenths of the pedigrees of the present herd in Davy's herd book are traced directly back to the old Quartly stock. Twenty-seven out of twenty-nine of the prize bulls mentioned in that work are descendants of "Forrester" (46), and twenty-nine out of thirty-four prize cows mentioned are descendants of the cow "Curly" (92), both bred by Mr. Quartly. The first importation of improved Devons into the United States was in 1817, six heifers and one bull, "Tamus," presented by Mr. Coke, then Earl of Leester, to Robert Patterson, Esq., of Baltimore, Maryland. "Tamus" was purchased by Mr. Coke when less than one year old for fifty guineas.

Messrs. S. & L. Hurlbut, of Winchester, Litchfield county, Connecticut, commenced their herd in 1819 from a pair procured of Mr. Patterson — "Holkam" (115), and "Fancy" (709).

The system of breeding Devons has not been of a hot-bed nature; while others, by being forced to early maturity, have reached their zenith, the progress and improvement of Devons has

continued steadily onward, not only retaining all the estimable qualities for which the early herds were noted, but are to-day exhibiting proportions that astonish even the breeders of Short-horns.

"Banister" (734) weighed at eight months old six hundred and thirty pounds.

Barefoot (732), bred by the Hon. James Buckingham, Zanesville, Ohio, weighed at two years old fourteen hundred and twenty-eight pounds.

Betty 2d, bred by I. S. Newton, Esq., of Verona, Dane county, Wisconsin, two thousand pounds at four years old.

The Devons do not mature as early as the Short-horns, but are much more remarkable for longevity, it being not an uncommon occurrence for a cow to retain her breeding and milking qualities until over twenty years old. The circumstance of their not maturing as early as the Short-horns, proves them better adapted to this locality. The old adage "Soon ripe soon rotten," seems to be literally true of the latter. The common course which the farmers of Wisconsin pursue to produce beef is to graze in the summer, in the winter feed simply hay and straw until two and a half or three and one-half years old; they are then fed with a suitable amount of grain with hay or straw for six months, making them marketable for beef at three or four years old. To explain this position better than by any language of my own, I read from the Cyclopædia Britannica, article Agriculture, page 388: "The distinguishing features of the Short-horns are that when properly treated they get sufficiently fat and are remunerative at or even under two years old; if they are kept lean to that age their excellence is lost; they then cost more money, consume more food, and do not fatten more rapidly than bullocks of slower growing and more compact breeds." Lest I weary your patience I hasten to consider the 4th proposition, to wit: They have never been equalled in this country by any other variety of full bloods for their milking qualities and general purposes of the dairy. "Beauty" (523), bred by Messrs. S. & L. Hurlbut from "Fancy" (709) and "Exchange" (197), produced sixteen pounds of butter per week through the month of June, 1850.

Mr. Coleman, in his European Agriculture, says the most productive cow in butter which I have found was a north Devon, which for several weeks in succession, without extra feed, produced twenty-one pounds of butter per week.

Mr. Wainwright, of Rhinebeck, N. Y., made fourteen pounds of butter per week from "Helene;" F. P. Holcomb, of New Castle, Delaware, nineteen and one-half pounds of butter per week from "Lady;" the Hon. H. Capron, formerly from Illinois, twenty-one pounds in nine days from "Flora 2d;" C. P. Holcomb, New Castle, Delaware, an average of fourteen pounds nine ounces per week for twelve weeks in succession; H. L. Cowles, Farmington, Connecticut, sixteen and one half pounds in ten days. If the above record can be excelled by any other breed of full bloods that are recorded or recordable, we will yield the palm. We now come to the 4th and last proposition, namely, the "Devons" have been bred more for their intrinsic value and less for speculative purposes than either Short-horns or Jerseys. The first part of this proposition is readily proved by the fact that thoroughbred Devons from the best herds can be purchased at a much less price than other breeds of even less value, one reason being they can be reared at much less expense. The tendency to speculation in the American people is probably greater than in those of any other nation, and at present pervades almost every branch of industry, and the main reason why we hear so little opposition to this practice either from the pulpit or the forum is that too many men are living in glass houses.

I crave your indulgence while I make one or two illustrations. Much of late has been said and written by breeders of cattle and tillers of the soil against the policy of the State Agricultural Society giving purses to the owners of running or trotting horses, claiming its immoral tendency in fostering betting, gambling and deception. Now, I am not disposed to argue this question except by way of comparison. It seems, however, to have at least one merit in it: there is no deception. The colt is purchased for certain qualities or formations which he possesses for a "trotter;" he is reared and trained for a "trotter;" no expense is spared in feeding, grooming and in procuring professional drivers to de-

velop his speed; at our annual fair he enters the list of competitors for the prize offered to "trotters;" by his powers of endurance, his even stride and propensity to stay, wins the race; and we read from the bulletin board on the stand, 2:31. He is now an expensive luxury in which none but the wealthy can indulge, and is sold for two thousand dollars. Not for his qualities as a horse for general purposes, not for his kindness as a family pet; he took the prize as a "trotter," and was sold as a "trotter," and proved his ability before honest judges and gazing thousands.

Not let us for a moment leave the race track and take a stroll through the cattle department. From a large placard we read, *Improved Short-horns* — upon a little card attached to the stall is printed, *Duchess of Geneva*, with her calf; we arouse this prodigy, and find him labeled *Prince of Wales*, six months old, weight seven hundred pounds. The hurried respiration of both dam and suckling indicate they are suffering from plethora. We ask ourselves from whence does this royal bovine receive his nourishment; the udder of the dam is small and filled with fat; no abdominal foramina or tortoise milk veins indicate that it had ever been distended with the lacteal secretion, yet the osseous structure of both is shrouded with fat; we exclaim, great is the mystery of cattle breeding. But this mystery is soon partially solved. A little way back from general observation, stand two first class grade cows that have acted in the capacity of wet nurses to his *royal highness* for the past six months, and they have proved their quality. We have hardly time to finish our observations before the blue ribbon decks the horns of the *Princess* and the neck of the *Prince*, and these two animals draw from the treasury of the State Agricultural Society forty-five dollars as the best breed for general purposes; the young *Prince* is sold to an honest farmer for five hundred dollars, but the wet nurses are not thrown in; they are kept for another five hundred dollar *Prince* at the next State Fair; there was no betting or gambling in the transaction, but there was gross deception, and the agricultural society, to use a legal phrase, is *particeps criminis*.

Now, for the benefit of all breeders, and in particular for farmers who purchase animals for this purpose, I quote again from

the Encyclopædia Britannica, article Agriculture, title Breeding, page 390:

We must here protest, says the author, against a practice by which Short-horn bulls are very often prematurely useless. Unless they are kept on short commons, they become unserviceable by their third or fourth year. Instead, however, of counteracting this tendency, the best animals are usually made up, as it is called, for exhibition at cattle shows, and the consequence is, they are ruined for breeding purposes. Care should be taken, in the case of all breeding animals, never to exceed that degree of flesh which is indispensable to perfect health and vigor.

Suppose some one of the members of the horticultural department of this convention should exhibit to us the seeds from a cucumber, taken from a vine that produced cucumbers eight inches in length, fit for the table on May 1st, in the same year they were planted, and this, too, in the northern part of Wisconsin, with unimpeachable testimony of its truth; and as a matter of compliment to the members of this convention, would dispose of a limited number of these seeds for the modest sum of five dollars each. Now, the idea of cucumbers on the 1st of May. I think I would take one, and there would probably be others with more money, and not less credulity, who would make a larger investment. I turn to my friend upon the right, and say to him, "How is this cucumber business? Is there anything in it?" "Of course there is," he says. "The man that raised that cucumber is a neighbor of mine; he has one of the finest hot houses there is in the state; it cost over ten thousand dollars. He pays his head gardener $50 per month, and it takes as much fuel to warm the institution, in proportion to its size, as they use at the insane asylum, and it is a paying institution at that. He took one thousand seeds from that cucumber, upon which he will realize five thousand dollars. This amount will pay for his fuel, pay his gardener's wages, and leave a handsome per cent. upon his investment."

Now with our facilities for cultivation, how many crisp cucumbers would grace our tables on the first of May, and about how many seeds should we have to dispose of at the next convention?

Is this picture overdrawn? Let us see. On the 10th of September, 1873, was sold at public auction the herd of Mr. Campbell, of New York Mills, near Utica, when 108 animals realized $380,000. Of these ten were bought by British breeders, six of which averaged $24,517, and one of them, Eighth Duchess of Geneva, was bought for Mr. Pevin Davies, of Gloucestershire, at the unprecedented price of £8,120, or $40,160. At this present time the intrinsic value of all these animals has been tested by the scales of the butcher, and allowing to each animal the heaviest weight, and sold at the highest price, we have a deficiency of $371,000. This is not all. Suppose we allow ten per cent. for insurance and interest on the investment, and we have a deficiency of $647,000 — $90,807 more than the assessed value of all neat cattle in Dane county at the last assessment.

Wall street has its bulls for gambling in gold and stocks, boards of trade have their bulls for gambling in wheat, and breeders have their bulls for cattle gambling, and the honest farmer pays the bills.

There are about seventy breeders of Short-horn cattle in the state, and over forty of pure blood Devons.

Now I propose to arraign the officers and managers of the State Agricultural Society for favoritism to the former and gross injustice to the latter.

1. In awarding individual premiums to all varieties of cattle except Devons, and thereby excluding forty breeders of pure blood Devons from competition at the state fairs.

2. In awarding premiums to a certain class of stock, without taking into consideration constitutional stamina, anatomical structure, symmetry of form, fineness of fibre, their qualities for the dairy, or any other desirable quality, except the amount of adipose matter they had been forced to carry by surfeiting at the meal chest, and then doped with saccharine syrup until an impaired constitution and impotency was the result, making it as impossible for them to produce a healthy progeny as a parent healthy offspring with a system tainted with scrofula, a gouty diathesis from excesses at the table, or a softened brain from the fumes of alcohol.

3. In (it would seem for no other purpose than to stigmatize the race) awarding premiums to animals called Devons, with black noses, black feet, black legs and black horns, circumstances as impossible to find among pure blood Devons as a leopard that had changed his spots or an Ethiopian his skin.

The breeders of Devon stock, many of them life members of the society, do not come as supplicants to beg for justice; they *demand it;* and can the State Agricultural Society afford to lose the patronage and influence of forty of the best breeders in the state and sustain itself? This question will be answered by the action of the society the present season. With equal privileges they are ready to meet all others in competition. They will meet them upon the fair grounds with their jars of golden butter and creamy cheese; they will meet them at the shambles with finely mottled sirloins that have always been the delight of the epicure; they will meet them with their flocks and their herds, satisfied to abide the decision of an enlightened public, fully believing "their castle's strength will laugh a siege to scorn."

Mr. Babbitt — The reason some of the members of the State Agricultural Society insisted on giving a very little more to the Short-horns was, that there was so much more money invested in them, and so many more breeders. I don't think the catalogue will show that any great injustice has been done to Devons in this state.

Mr. Newton — From 1858 to 1878, inclusive, the agricultural society of the state of Wisconsin has paid as much in premiums to Short-horn breeders as they have to the breeders of all other races of cattle combined, lacking $130. If you will give the same encouragement to any one of the other various breeds of cattle that you have to the Short-horns, twenty years from to-day you will not find half as many Short-horns in the state as of the breeds you thus encourage. This society sets the example to the county societies, and in this way the breeding of Short-horns has been encouraged above its merits.

As to the milking qualities of the Devons, they are not to be

excelled, I think, by any other breed of cattle, taking into consideration quantity and quality of milk.

Sec. Geo. E. Bryant — Before we come to the general discussion, I would like to ask this question: I received a letter from the commissioner of agriculture saying that it had been reported to him that there had been discovered by some one in Wisconsin, a grass called the paper grass; and he wanted to know if I knew anything about it; that it was far better than straw or any of the things generally used for making paper.

Chester Hazen — In this dairy country, where the dairy interests far exceed the beef products, it seems to me dairy stocks should be noticed, at least, in our agricultural conventions. While each particular breed of cattle fills their place in the list for the several purposes for which they are bred, it cannot be denied that the milking breed, or dairy cows, are the stock for the common farmer of Wisconsin.

As there have been many papers and addresses presented to our conventions on this subject, I will confine myself to a few of the very many statistics of the products of the Ayrshire cow. I will give the result of four months' milking of the Ayrshire cow Flora Temple, bred by J. F. Converse, of Jefferson county, New York, and sold to J. F. Brown, Providence, R. I., who owned her when the following results were attained:

Weight of cow, 1,075 lbs. Dropped calf April 25, and in May gave an average of 24 quarts of milk per day, and a total of..	1,582	lbs.
In June, gave an average of 29 quarts of milk per day, and a total of.....	1,848½	lbs.
In July, gave an average of 26 quarts of milk per day, and a total of.....	1,714	lbs.
In August, gave an average of 24⅓ quarts of milk per day, and a total of.....	1,601	lbs.
	6,745½	lbs.

Six times her live weight in four months, and 535 pounds over!

Mr. Lawrence, of Massachusetts, owned an Ayrshire cow that made 240 pounds of butter in twelve weeks—an average of twenty pounds per week. J. M. Smith, Esq., of Green Bay, president of

the Horticultural Society (perhaps some gentleman present may be acquainted with him), made 371 pounds of butter from his Ayrshire cow Jennie in one year.

I will give a statement of the production of an Ayrshire grade — the cow Old Creamer, owned by Gen. S. D. Hungerford, of Adams, Jefferson county, New York. Her live weight was 1,080 pounds, and her best yield was 303½ pounds of milk in three days. She gave an average of ninety-six pounds per day through the month of June. Old Creamer is three-fourths Ayrshire. I will give results of some of the cows imported and bred and owned by J. F. Converse, of Jefferson county, New York. The Ayrshire cow Rosa gave sixty-two pounds of milk per day, ten consecutive days in June, on grass feed alone. Dolly Varden gave forty-five pounds of milk per day when two years old. The cow Jane Pender, bred by J. F. Converse, gave in January her live weight in milk in twenty-four days. The cow Ayrshire Lass gave seventy-eight pounds of milk daily, and Red Rose gave eighty-four pounds daily. The two last cows named were milked for the trial at New York state fair.

It is estimated that the consumption of milk and its products is four times as much as that of beef, and that the product of a good dairy cow per annum is equal in value to a four year old bullock sold for beef. From this we can form some idea of the value of first class dairy cows to the Wisconsin dairyman.

In order to present this dairy business to this convention, I wish to make some estimates that will approximate very closely to the aggregate product of the dairy. We have at this date not less than 18,000,000 cows in America. At an average of fifty dollars to the cow this would amount to $900,000,000. Of this amount Wisconsin proposes to go in for her share.

February 6.

AFTERNOON SESSION.

A Talk on Pruning and Grafting.

Mr. Olds — I would like to ask Mr. Peffer what he would do with these young, thick heads, like Perry Russet and Northern Spy. Would he let them take their natural course?

Mr. Peffer — All those that are thrifty, upright growers, instead of trimming from below up, I'd trim from the top down, so as to make the limbs spread out.

Mr. Olds — Take out any limbs to trim them?

Mr. Peffer — Yes, some, but not so as to expose the limbs, that have been shaded by that thick foliage, to the sun at once.

Mr. Olds — Does not your experience lead you to conclude that many of that class of trees that seem to have such a thick headed habit require that system, to be allowed their natural way to a great degree?

Mr. Peffer — All the foliage grows upwards, and on the Northern Spy and the Perry Russet the leaves as a general rule are peaked; they always grow straight up; the consequence is they do not form blossom buds, and even if they do the shoots take all the sap, so the blossoms will fall off before they set.

Mr. Olds — I want to bring out more explanation in regard to the process of root pruning large apple trees that are in a thrifty, vigorous condition and do not bring much fruit like the Flushing Spitzenberg. It never bears much, but it is an excellent tree.

Mr. Peffer — If a tree is growing too fast, and you do not want to touch the tops, you want to prune the ends of the roots, not so as to take big roots, but a little on the outside of where the limbs spread, either by cutting them off with a spade, or take a good plow with a sharp coulter and cut deep enough so as to cut the ends, so as to stop the flow so as to make too much root; to sicken the tree in fact; that is all.

Mr. Olds — The question with me in regard to that has been, whether it needs to be retarded in its growth or some sort of a fertilizer applied to it different from what the soil produces.

Mr. Jordan — In regard to unfruitful fruit trees that become large enough to produce and do not bear, I find there is a growing habit among some men who are raising orchards, of girdling the tree, thereby bringing it into immediate fruitfulness. There is a little risk attached to this if it is not done at the proper time; it may kill the tree, yet if it is done at the right time you may strip three feet of bark off the body of the tree; peel it entirely bare and it does not kill the tree.

Mr. Kellogg — What time is that?

Mr. Jordan — It is some time about the first of June. I think it would be about the middle or last of May.

Mr. Field — When the new bark is forming on the inner part of the tree.

Mr. Jordan — Anything that injures the life of the tree produces fruitfulness. It is the nature of all plants to propagate their species before they die; consequently, if you do anything, root-pruning answers the same purpose, though it is more difficult. I would advise those who are going to practice this, to take a limb or a number of limbs and strip off the bark. Some say you need not take much, a quarter of an inch answers the same purpose as a larger space. It simply stops the flow of sap and produces fruit buds; the sap that is used in some way in the bark is used in forming fruit buds. There was a question or two asked me since I made the remark about grafting early in the spring. Some do not seem to understand it fully and doubt it a little. It is a new idea to graft in January, February and March. I think I am safe in saying that any man who is an experimental grafter, and understands it, will graft the first warm days that come. I do not care how soon it is. Do it just as he does in the spring, and he will say he never had better success. I never have failed with any of my early grafting. I have done some already this season.

Mr. Field — You would not do it when the limbs are frozen?

Mr. Jordan — No, sir; any day a man can work out comfortably. Another thing, if you graft at that season of the year, and practice as some parties do, making your wax with tallow, your work will be a failure. I never use tallow in out-door work except in the ground. Instead of tallow use linseed oil to thin your wax. I will give the receipt: Three parts of resin, one of beeswax; linseed oil sufficient to soften it, so that it will pull and work (like taffy candy does in the house) out of doors, the way you want to use it. I never use paper, cloth or anything but the clean wax, pull it into a ribbon and wind it around, covering all the wound and the graft. An old orchard man asked me a moment ago, whether in cutting the wood it did not receive damage from freezing. I told him no, because the wounds are all covered

with wax, and it is no more liable to injure it because it freezes hard, than if there had been no wound made. I grafted a number of seasons when the mercury went 20 degrees below zero, and never had better success than I did with that grafting.

Mr. Haight — I would like to ask if the gentleman would propose the same with plum or cherry trees that he would with apple?

Mr. Jordan — I have been successful with grafting the plum into the wild plum early in March or April; nearly as successful as with the apple. I think my cherries grow about as well as the plums. I think that nine-tenths of those that are put in graft of the plums and cherries grow. I seldom lose a graft that I put in early of the apples. Late grafting almost always fails. Another thing, some farmers think that nobody but an experienced hand can graft. That is a mistake. Any man or boy, if he is a common work hand, no matter how clumsy he is, can graft with very little practice. One summer I did all my grafting because I was so particular. Last year I had a German boy about 16 or 17 years old, who was rather a stupid fellow, and I set him at work at it, and watched each day or part of a day, when I would go back to see if he was doing it just right. I found a good deal of fault with him about some trees, but still his grafting did as well as mine. He was a common hand, and never did any before in his life. It is the way you prepare your wax and put it on, more than any other one thing.

Mr. Peffer — You would have to be particular in getting the bark united?

Mr. Jordan — Yes, but still they have so long a time, a month or six weeks, to form this callous, where it is grafted early, and that is going on every pleasant day; consequently they are united before it becomes time for the sap to flow.

Mr. Olds — Did you ever use cloth?

Mr. Jordan — Yes, I have used paper and cloth and have every time fallen back to using the plain, simple wax. When I melt the beeswax and resin together till it is thoroughly melted, I take my pan or dish off the stove and go out into the yard, and I then commence to pour in my linseed oil and stir as I pour in.

When I think I have got nearly enough in I have a bucket of cold water close by, and I grease my hands and commence pulling it as I would taffy candy. If, as it gets cool, it snaps, it is too hard. I will put that piece away and use it when I melt again, and pour in more oil until I think it is right, and then stir it thoroughly. The children all help me to prepare the wax, and I lay it away in a bucket of water to use. I have about three grades of softness of wax, to use in the morning and in the evening. On a day when my wax would be too cold, I take the ash bucket and put in the bottom some hot coals from the stove, and take a little bucket of hot water and renew the water I keep the wax in, so as to keep it warm enough. I have grafted on days as cold as this.

Mr. Millett — What is the best time in the year to prune apple trees?

Mr. Jordan — I would say, whenever you can pinch off new wood with your thumb and finger. I do not do much pruning. It will not do in Minnesota. I am speaking of a colder climate. If you prune, and leave the wound open, it is a good deal like bursting a hole in your window; it lets the cold in, and you sometimes fasten a piece of paper over the window glass. So if you cut a tree, it is necessary to protect it with glass, or it will leave a cold spot in the tree. Consequently I do not do much pruning, unless it is done with the thumb and finger, or I wax it over.

Another thing, Mr. Peffer spoke in regard to the grafting of trees. For the last four years I have never grafted a tree unless I take off the entire top and put on an entire new one. I never take off half. I have grafted Transcendents that were six inches through, putting in as high as seventy-five grafts in a tree.

Mr. Kellogg — I do not think we can adopt the plan of grafting a whole top, as proposed by our friend from Minnesota. I agree with Mr. Peffer, that we must take two to four years to work a large tree over, and it must be done carefully. These grafters that go through the country do it to make money, and you pay for it and lose your trees most every time. I would like to ask Mr. Peffer if he has ever grafted in January or February?

Mr. Peffer — I never have.

Mr. Jordan — The most successful grafting I have done for the last four years was done early in January, February or March. I see no difference in any time previous to a week or so before the buds' swelling. I like to do it at least two weeks before the sap begins to flow. There is no risk. I have enough scions of Wealthy to put in 20,000 grafts this spring, and I intend to do it before the stock grows, or I shall not do it at all.

Mr. Peffer — What are the stock you are to put it on?

Mr. Jordan — Transcendent.

Mr. Peffer — That tells the story. As soon as the stock commences to grow you cannot graft a crab apple.

Mr. Adams — I have heard it stated that pears can be successfully top-grafted on apple trees. Can any intelligent person give us any light on that subject?

Mr. Peffer — I have tried it but I never succeeded. I have worked them on thorn and done tolerably well on the White Thorn, and some on Mountain Ash. They lasted for a few years, but they went, of course, after a little while.

Mr. Jordan — I would like to say, in regard to grafting pears on apple trees, I have tried everything I ever heard of. A sister of mine said she saw a currant bush growing on an apple tree. I believed her word but I went to work bound to make a currant grow on an apple tree, if anybody else could, but I failed in it.

Mr. Peffer — I have seen it. It was an old apple tree, and the limb was dry and rotten, and there was a hole big enough to put a flower pot in, and it was grafted on with a flower pot.

Mr. Jordan — I have grafted on almost every variety of tree that I have in the orchard.

Judge Bryant — When I was a boy, my father had an apple tree that had Baldwin's Early Sweets, native apples and pears growing on the same tree for a great many years. He also had pears growing on the mountain ash. I saw him graft pears in a Rock maple tree and saw it grow for the first year well; the next year it started and then it died.

Mr. Plumb — You may believe everything Judge Bryant says

about Short horns and Jerseys, but when he talks about grafting apples on maples we think it is a lawyer's story.

Judge Bryant — I did not say apples, I said pears.

Mr. Tuthill — I have worked a pear on an apple tree. I never yet have found a tree that I thought was worth anything growing in that way. I believe the only way to work a pear and have it worth anything is to have it on a pear tree, and the only way to have them ironclad and free from blight is to get them from France.

Mr. Kellogg — I have tried pear grafting on the apple, mountain ash and white thorn, and on the native pear seedling. They are an entire failure except up at Green Bay. I would like to turn this grafting question a little towards evergreens. If any of you have any long-legged evergreens that are growing up, just cut their heads off. If they are twenty feet high and out of shape, cut them off ten feet and keep the limbs in proportion. Keep them there until you have them as handsome as you want them, and then let them grow up again. There are some in this capitol park that are out of shape. They never should be. They should never be less than eight feet apart, if you want them for ornament. You can shear any kind of evergreen in any shape you have a mind to. If you do not cut it below the lower limbs you can cut it clear down, I do not care how big it is. Do not be afraid to cut the limbs; that is, cut the ends of the limbs, trim them in.

I call on Mr. Tuthill, who advocates this pruning in March, and who says you can cut off a limb as big as your leg and I don't know how much larger, and no damage is done.

Mr. Tuthill — I find, in cutting large limbs, the best time to do it is before the sap starts in the spring. I generally wait until I am satisfied the extreme cold weather is over. I have trimmed at all seasons of the year, and done all kinds of work in trimming. I have trimmed carefully with saws, and cut the surfaces smooth, and I have cut limbs that were six or eight inches through with an axe, and I have never found any time so good for cutting large trees and large limbs as before the sap starts in the spring, and give the cut sufficient time to sear over. I have

cut part of a tree in the latter part of March and part in June, and the tree shows, and did for years, that the cuts made in March never turned black, while those made in June did. If I had a tree like the Perry Russet, or something that I wanted to check the growth of and turn into fruit, or possibly a young orchard of thrifty growth and not bearing, trimming in June so far retards the growth as to turn the fruit buds and bring on a crop; but inasmuch as it does it, it injures the vitality of the tree, of course, in checking up the growth. It is generally conceded that trimming when the leaves are on checks the growth of a tree. I have done about as much heavy pruning as anybody, for I have had an orchard growing in the most miserable shape that an orchard ever grew in, limbs coming out right at the ground, and in order to do anything with that orchard, I have had to go into it and cut off those limbs, and keep running it up, and I have succeeded now, until I can plow right up to the tree, and I have cut off large limbs without any injury. I used to think we could not trim trees here as we did in New England, but if you will take the right time for it, you can do it as well here as there.

Mr. Plumb — This matter of pruning on which we differ as widely as we do here is certainly worthy of further discussion. My observation and my theory is, that if you cut off a limb of a tree any time before the sap starts, and it remains without protection, that tree is sure to bleed when the sap starts. The first sap that starts in the tree is as thin as water, and it will push out of that wound, and the wound will become black. But if you wait until the leaves have started just a little, the sap is changed in its nature somewhat, and is changing every day, and the bleeding will be very much less. You cut off a limb in September or October, when the juices of the tree are thick, and the juices form their own natural cement, which fills up that wound, and it never will decay. Any wood chopper will tell you that. You go into the woods where you have cut the previous winter, and you will find every place you have cut decayed in some shape; but if a wood chopper went into the woods three or four years ago in the summer and cut off a limb, it is as sound as a bone.

Now I will cite you an example. About three miles from this

city, Mr. Stone, the ticket agent, had an orchard, and it was limbed out — grand, noble arms, nicely bearing, and somebody told him the orchard would do better by trimming it up. He went in there about the first of March, and he and his man spent a week trimming that orchard with the saw and axe; cut off limbs as large as my arm, and trimmed them up. Two years afterwards, says he, "Plumb, my orchard is all going to the shades. It is all rotten. I want you to go and look at it." I was by there, and went and looked at it. Says I, "When did you trim it?" Says he, "I did it in March." "Says I, "Your orchard ought to go to the shades." I think that was six or seven years ago, and his orchard is just beginning to recover. A great many of the trees have died. Now, if when he cut off those limbs he had put on some sort of a varnish that would have filled up and prevented the flow of sap, he would have saved nine-tenths of his difficulty. It was not the loss of the limbs, but making those large wounds and the flow of sap. If you want to cut in March, you ought to be sure on all large limbs to apply some sort of a varnish which will supply the place that nature supplies other parts of the year. Take equal parts of resin and linseed oil, and melt them together and apply hot with a brush. Any one with a little ingenuity can get up a little furnace, and any time within a week or two after you have done your sawing, before the sap starts, go over and varnish them with boiling hot wax, if you can get it on. Another way is to take gum shellac and dissolve it in alcohol and apply that cold, and it will answer the same purpose. Put it on thin. Unless you fill up the wounds, I advise you not to trim at this season of the year.

I want to say a word more about the pear business. From 1845 to 1855 we grafted almost all our pears upon apples in Jefferson county; hundreds and thousands of trees, not only standard apples and seedlings, but the native crabs. Very many of them bore. We had quite an abundance of pears. We found some varieties very successful. The Flemish Beauty never succeeded. A few of the slow growers succeeded fairly well, but in a few years they passed away. It is not to be recommended only as a temporary expedient, because the pear is not adapted to the

apple. There is no congeniality as a rule. There was just one variety, a very worthless little pear, that seemed to form just as perfect a union as any apples, but we never thought it worth while to propagate them in that way.

Mr. Shivley — I have had some experience in old orchards, and I rise for information. A year ago last January I bought an old farm in the town of Brooklyn, and there was an old orchard on an elevated piece of ground, underlaid with limestone, some of the limestone pretty close to the top of the ground. The trees were put out in 1850. Some of the branches were alive, but the old part had become kind of scrubby, and had hardly grown for ten years. There was an old man living there, who was not considered a benefit to himself, nor much of any to anybody else, but if you put the right man in the right place, he can be beneficial in some place, one way or another. I met him one day, and asked him if he knew anything about trimming apple trees. He said he did; he had done it east enough to learn his business. I made a bargain with him for ten dollars to trim that orchard. My son lived on the farm, and I went away, and did not pay any attention to it. In a few days I saw my son, and he said: "You had better come out and see that orchard, Thompson is spoiling it; he is cutting it all down, and he is doing it with an ax; and he is doing a butcher's job, cutting off the limbs with an ax; and the inside limbs, where he cannot reach with an ax, he is sawing off with a saw."

I went over and he had the job about done. I did not say a word, but paid him his ten dollars. I did not expect the orchard would be of any account. It had not borne an apple for ten years to amount to anything, and what it had borne was bitter and scabby and everything but good. There were 150 or 200 trees. It took me and my son three days as busy as we could be to haul the brush off, and the old man got wood enough to last him a year. The result was my son got all the apples he could use, and the nicest apples I ever ate, and the best fruit I ever ate, I think, came out of that orchard. There were not a great many apples, because there was no top, but what few limbs there were all bore nice, thrifty apples, smooth and clean. Now I want

to know what course to pursue to keep that growing? It was cut some time in March. We worked three days hauling brush, and worked around there several days before the frost was out of the ground, so we could plow. It is looking thrifty and nice now and I want to know what course to pursue with it, and what is going to become of it?

Mr. Kellogg — I would say keep it in cultivation, withhold crops for three years, and then seed it down to clover.

Mr. Tuthill — This question is as well settled among fruit growers east and west as any other question in horticulture, that we cannot prune as early west as we can east. Further south they may prune in the fall. I do not believe it is safe here to prune in the fall. I notice, in getting out nursery trees in the fall, if the trees are injured, as they sometimes are, by rubbing the bark off with the rope, they are generally dead in the spring. If you make any cut in the tree late in the fall, the tree is not in condition to go well through the winter. In the east there are no two opinions about the proper time for pruning. It is either done before the sap starts, in the spring, or in June, after the foliage is well up; but I have tried this pruning and cutting large trees, and I have never since I commenced pruning in the last of March had a tree bleed one particle. It does not even color the wood. It is the only time I ever pruned when I thought the thing was a perfect success. I used to put on wax where I pruned. Those trees would immediately bleed. The wax kept the pores open, and if the wax was not tight all around it would ooze through the wax. I have put paint on it, and tried to put shellac varnish on it, and I can see no cause to use either. If you prune and let the cut dry, it heals over. It is a well laid down principle in the books that pruning done in June will heal over rapidly, but the inner wood is liable to rot. The wood is sounder where it is cut early in the season. It will not heal over quite so rapidly as it will pruned in June, but it is sounder, and never rots.

Mr. Jordan — I hope that what our friend Tuthill has said will not apply to any section of the country but where he lives, because I think it will not do generally to adopt that plan. Ac-

cording to my experience in the southern part of Minnesota and further north in this state than where Mr. Tuthill lives, it would be injurious to do that way, and there is only one plan, and that is, if you are going to cut trees, do it when they will not bleed. I believe Mr. Tuthill is right in his locality, but he would not be a few hundred miles further out. After the leaf is fully out is the best time to prune in a cold climate, and even then I prefer waxing or putting on a solution of varnish. I would prefer waxing no matter when I prune.

Mr. Olds — I want to ask the gentleman who had the orchard pruned, if his trees did not throw out an abundance of watersprouts when the trees were cut?

Mr. Shivley — No, sir. I have noticed but very few. The bark at the bottom seems to be level where a few years ago it seemed to be like shellbark hickory.

Mr. Olds — My experience has been, when I would prune any time in the spring, the tree would fill up with watersprouts, and I would certainly have to do the work over again in two years.

Mr. Chipman — I would like to ask what benefit there is in pruning. My trees that have been pruned in three years have all died, and that has been the general rule all through our locality. I had a little orchard north of my house with about 150 trees, about fifteen years old. I got a man to prune it up, and in three years there was only one tree alive. I have now a nice orchard set about five years. They are urging me pretty strongly to have it pruned up. I am rather afraid if I have them pruned up they will go back on me. There are four trees set out thirty years ago that have never been pruned. Three of those trees have averaged one hundred bushels of apples apiece in the last three years. The other tree is a shy bearer. The rest of that orchard of 150 trees died in 1877, I think.

Mr. Sloan — From my observation and experience in trimming apple trees, I do not believe anybody is justified in cutting a large limb off from an old apple tree in this country. I think, if it is done at any season of the year, the tree is in danger of dying. I do not believe there is ever any necessity for it. I do not think there are ever so many large limbs upon a tree but what if you

are going to consult utility, they can all remain there. You might, perhaps, if you could do it safely, improve the shape and beauty of the tree. You can cut out enough small limbs so there will be light and air enough in it. The trouble with old trees is the exhaustion of the soil at the root, and the place to begin renovating old trees is at the root. You must feed it; manure it. You may safely cut out small limbs. The large limbs will not interfere with the usefulness and fruitfulness of the tree, but if you will not plow it and manure and put on ashes and the mineral elements which are necessary to make fruit, and to bring the tree back to life, where it has stood for fifteen or twenty years and exhausted the elements, it will naturally fall into a state of decay.

I should be glad to see a resolution passed that no one is justified in cutting a large limb off from an old apple tree. Begin at the root, and feed it, and cut out such small limbs as are necessary to give it light and air, and you will restore it to life, and not impair the life of the tree so that decay will set in and the tree rot away and die. In that way, I think, an old orchard may be restored to usefulness, no matter how stunted the growth of the tree, if you will feed it where nature intended the food should be taken, at the root, and let the large limbs at the top alone.

Mr. Plumb — I do not think we are justified by any true theory of culture or of renovation in cutting off the large limbs of a tree. You may do it because the limb is in the way, but that is the exception and not the rule. This farmer supposed he must trim his orchard, and get rid of these large limbs so as to cultivate it. If he had let those large limbs remain, and cultivated outside of them, he would have secured all the benefits of the renovation of the orchard, and the probability is that his orchard would have lived many years to have given him pleasure and profit.

We cannot enforce too much the danger of cutting off large limbs. I know of no principle which should induce one to cut off the large limbs of a tree when the head is once formed.

Mr. Babbitt — In following up the argument of Mr. Sloan, I

would say I have a neighbor who had a very old orchard. He took as large a load of manure as he could haul with two splendid horses, and he deposited that amount around every single tree he had, with a quantity of ashes, and in a very short time he had plenty of apples for his neighbors.

Mr. Tuthill — I do not believe it is necessary to cut large limbs off a tree if the tree is growing as it should be; but the theory twenty or twenty-five years ago was that we must get the limbs clear from the ground, and we have had our orchards in such a state we could not get around them and could not cultivate them, and it was necessary to cut them off. I do not believe that in the present manner of growing trees that it is necessary to cut large limbs, but still I think I can do it without injury to the tree if I want them off.

Mr. Chipman — Of the trees in our locality, there is not one alive that is not limbed out close to the ground. All those trimmed up high are dead and gone.

Mr. Adams here offered the following resolutions, which were unanimously adopted:

"WHEREAS, The railroad interests of the United States are becoming more closely identified year by year, and less subject to the laws of competition; and

"WHEREAS, They abuse their power by extortionate rates in seasons of increasing business, to the great detriment and loss of the agricultural interest; and

"WHEREAS, The power vests in congress to limit this abuse of power by national law; therefore

"*Resolved*, By the farmers of Wisconsin, as represented in this convention, that our delegates in congress be requested to support by votes and influence, measures which will tend to remedy the evil complained of, by a rational law.

"*Resolved*, That copies of these resolutions be sent by the secretary to each of our representatives and senators."

QUESTION BOX.

How can we best keep up the fertility of our soils?

Judge Bryant — I would say, in a very few words, by putting back on the land what nature intended should go on. I call the attention of every farmer to what he is wasting that ought to go back upon the land. Our prominent men and institutions are setting a wrong example. At the insane asylum they have got a sewer that takes the contents of the privies of that great institution into the lake, and right near it they have another thing that pumps the water back, which is used for drinking and other purposes. I believe that is all wrong. I believe that any farmer who permits the contents of the vessels taken from his bed chambers to be carried away and emptied into a hole in the ground, commits a sin. It ought to be saved and put on the land to enrich it.

I was talking with Mr. Rublee, the minister from this country to Switzerland for a number of years, and he told me that in that country every bit of all that kind of stuff is preserved and utilized. Every farmer has a little compost heap behind his house, covered up with straw and thatches and dirt, and disinfectants kept on it to keep it from smelling, and it is all used and put back on the land. As you are traveling along the road you will see boys with little carts, sometimes drawn by a dog, and sometimes by themselves, and every time anything drops from a passing horse it is taken up and put in the little cart and carried to the compost heap; and mind you, that boy does not go past the boundary line of the farm that his father owns, because the next man's boy is out for the same thing. In this country we are wasting all these things. I was out in Minnesota the other day on the Chippewa river, at a nice, smart town that had just sprung up there. They have a street that runs along the river bank for a mile, one side on the river and the other backs up on the prairie. The people on the river side are boasting how much better off they are than their neighbors because they can shove the manure out of their barns into the river and have it carried away.

They are doing the same thing in this city; they are doing it in this capitol. There are thousands of loads of fertilizers going

out under the streets and into the Third lake — and a little ways below they are cutting the ice and sending it to Chicago — while the land all around the city wants it. I knew a lawyer (they say lawyers don't know much about farming) — I knew a lawyer of this city that owned a farm, and lived upon it, four miles out, who made one of these little compost places, where he required all this excrescence of his home to be emptied, and once or twice a week he would take his wheelbarrow, and put it on the land. He made his farm blossom like the rose. A great many folks think this would kill the country. I know very well when I first went to farming, and hauled the contents of the vaults from this capitol out to my farm, my neighbors had a meeting on that subject, and at a sewing circle it was decided they ought to go and see the judge, and stop him from taking that stinking stuff into the neighborhood.

Now anybody that comes out to my place can see the results of it. One man was to my farm a few days since and said to me, "What are you going to do with your hay?" I said, "I don't know." Said he, "Why don't you keep more cattle?" I told him to go up to the barn and see how many I had. He said, "I never saw a man in this country keep so many cattle on so small a place." It all comes from this bad smelling stuff I carried there several years ago.

Mr. Smith — It is known to some of you that I am a strong advocate of manure, and a great deal of it, for all times and places and for all kinds of crops. Last year I used about four hundred two horse loads of manure and two thousand bushels of ashes, a number of tons of hen manure, a number of barrels of plaster and some bone dust.

Now I will simply state in a few words how I dispose of the refuse from my house. I have a pit dug that will hold two or three wagon loads of earth. Where I live I generally get the street manure from the city; that always being fine in the spring when it is dry, I haul that in and fill up the pit. Then I have a trough leading from the back of my house to the pit, into which are poured all the slops of the house of all kinds, and they run into the pit. When it is filled as full as it will hold, I take it out

and haul it off to the compost heap, and fill up the pit again. All the soap suds, the dish water and the water from the bedrooms is thrown into the trough.

If we have a load of manure on the place, of course it goes into the compost heap, and then during the summer I have the street manure from the city, and I also have a team employed a great part of the time in gathering up everything from my grounds. All the refuse, the potato tops, the turnip tops, the cabbage leaves and weeds of all kinds — I do not intend to have weeds grow, but they will in spite of all I can do, and they all go into the compost heap, or into the hog-pen, and they work it over, and from there it finds its way to the compost heap. A year ago last summer I had about twenty hogs, and with those I had about two hundred two-horse loads of manure; the manure was worth more than the pork. I could have sold it for more than I could the hogs.

Mr. Shivley — This compost heap of stuff will do for city manure, but when you go out onto a farm, you have got to work on a larger scale. I have a little farm in Rock county, in the town of Woodville, and we keep a few cattle and a few of everything. That has always been my plan, to keep a little of everything, but the principal stock is sheep. We raise more corn than any other crop; calculate to cut up from fifteen to twenty acres of corn every year, mostly Yankee corn; and we keep from one hundred to one hundred and fifty sheep over the winter, and probably two hundred and fifty stock sheep. Some say sheep do not amount to much for manure. You can make more manure out of a hundred dollars' worth of sheep than out of a hundred dollars worth of any other kind of stock you can put it into.

Mr. Smith — You would be surprised at the size of the compost heap that you can make in that way, by gathering together the refuse of your farm. Any farmer can do it. I spoke of this manner of disposing of the refuse of the house because it is a good way of getting rid of it. It ceases to be a nuisance, and you are getting something valuable, and it is a matter of cleanliness and a matter of health; and every man who has a farm of a hundred acres, if he will go to work in that way, making use of

the days and parts of days when he can spare his man, letting him take the horses and gather up all the refuse in the field, when he gathers his squashes, take his squash vines, and when he digs his potatoes, take his potato tops, and gather up all the weeds, and you will find you can make an immense compost heap, and a very valuable one. I know it by a good many years' experience. It is not expensive to work it over. I have one heap now that I think I shall get three hundred loads from in the spring. The most of it has been worked over once, but we shall work it all over again in the spring, and it will be done in a few days, and then I shall have about three hundred loads of fine manure. You can put it on the ground after you have plowed, or if you have grass ground, put it onto that. You cannot put it amiss. It will pay, and pay largely.

And there is another advantage — the pay comes right away. You get the pay on the first crop when it is in that shape. If you had plenty of money, or could use your man in the few leisure days you have occasionally — could set him at something where he could earn a couple of dollars, and could take that money and buy some fertilizers with it, it is possible you could buy the same amount of fertilizing material that you could get in this way, but you would have to pay the money for it, and this way you get it without doing that. The material lies loose all around you ; you are only gathering it up and putting it into shape, so that it will work itself up and become of value to you the coming year; turning your labor into money and improving your land at the same time.

Mr. Chipman — How much more benefit is there in gathering up the vines of the potatoes and squashes than there is in letting them remain on the ground where they grew.

Mr. Smith — If you are going to plow immediately, I do not know that there is any more. Last year I plowed my squash ground right under instead of taking the vines to the compost heap, and a portion of the tomato vines I did in the same way; but to let them stay there all winter and blow away, is not a good way to do.

Mr. Chipman — I have had better success in putting coarse

straw manure right on the ground, and letting it lie, than with the compost heap. The best success I have ever had with the coarse manure was to put it on the ground in the spring and plow it in; and as to grass ground, there is no kind of manure I have ever put on that does as much good as coarse straw manure spread on thin.

Mr. Olds — In regard to locating this compost heap so that it is conveniently accessible to receive all the slops from the house, how is it arranged so as not to cause offensive odors that might be detrimental to the health of the family?

Mr. Smith — As far as that is concerned, mine is about 75 feet from the house and just a square pit, perhaps ten feet square and two or three feet deep, large enough to hold one or two wagon loads. If I don't have the street manure I get some dry earth. The compost heap is in the middle of my grounds, where I can get at it easily. In regard to using straw, that reminds me of an incident that occurred in my neighborhood a number of years ago. A gentleman came to me and said, "You claim that straw is not worth anything for manure." "Well," said I, "chemical analysis shows that straw is not very valuable for that purpose." Said he, "four or five years ago I had a stack of straw that I did not know what to do with, so as I was plowing the ground I concluded to plow it under, and I turned it under six or eight inches deep, and I have had very much better crops on that ground ever since, and I can see the effects of it yet." I happened to know the field well. It was a very rich piece of land and it was very heavy and black, almost a muck, underlaid with a clay that was as tight as a stone jug, so I said to him, "That is precisely what I should expect from the use of straw upon that land." I asked him if the land was not loose now where it had previously been in the habit of packing. "Yes," said he, "it has been loose and mellow ever since." Said I, "Of course it is, and will be until the effect of that straw is all gone. The land was rich enough to raise good crops without the straw, but it was the mechanical effect produced by the use of the straw that made it valuable."

Now suppose I had gone onto some land where a portion of it was almost pure sand, and had gone and bought some straw, and

said, I will put straw on my land, as it does not produce very well, and I put it on and plowed it in. What would have been the result? If it had been a little dry, I should not have got a thing. If it had been very wet, I might have got some crop. I mention this to show that you cannot give any one rule that will apply to all soils, all circumstances and all cases. We must use judgment in these matters.

Mr. Arnold — I have not much of an opinion on this manner of manuring land, but my judgment is that top dressing is the best, and for the purpose of getting at the sense of this convention, I offer the following resolution:

"*Resolved*, That it is the judgment of this convention that, as a rule, top dressing is the better method of enriching the lands of this state."

Mr. Plumb — I would like to offer a suggestion. When our president was talking about using manure at the rate of so many tons to the acre, hauling it from the compost heap that has made so many months of preparation, you must understand that he is using land that is worth somewhere from three hundred to five hundred dollars an acre, whereas a majority of the farmers of Wisconsin are using lands that are worth less than twenty-five dollars an acre, market value. Now your practice must be very nearly to correspond with that. The question is, Will it pay? And you will find that your twenty-five dollars an acre land will never pay for composting and preparing your manures in the expensive manner which Mr. Smith practices on his land.

Mr. Smith — It will not pay to cultivate land at all if it is not worth more than twenty-five dollars an acre.

Mr. Plumb — There are as good lands in the neighborhood of Milton as are supposed to be found in Wisconsin, and I heard one farmer say that he could not afford to haul manure from the stock yards and from the livery stables in the village adjacent to his farm, because it did not pay. That he could manure his land cheaper with clover. That is Mr. Alexander. He would have to haul manure from sixty to a hundred rods. Mr. Goodrich is here. He has been hauling hundreds, and I do not know but thousands, of loads of manure, and has never paid much for it.

He can tell us whether it has paid. I presume it has, because he has been growing tobacco, which must have strong manure. This whole question depends upon the value of the land and its product, and the cost of manuring.

Mr. Goodrich — In regard to drawing out manure from Milton, I have been in the habit of getting all the manure that no one else wanted, and drawing it on my farm. I cleared all the railroad cars last spring that were left standing in town for an hour, and it paid me.

The universal testimony of farmers around Elgin to me last spring, was that top dressing paid them twenty-five per cent. better than to put it into any other shape and draw it onto the land. Practical farmers have told me they have tried it in strips, putting on a strip manure drawn directly from the stable, and on another, manure that they had allowed to lay in the barnyard until spring, and they could see the difference in favor of the strip on which they put the manure that was drawn directly from the stable to the field.

Mr. Chipman — I think that would be impracticable for most farmers. If you draw fresh manure and put it on grass ground from the stables, it will be lumpy and will kill the grass; if you draw it in the spring for your corn land, you tread your land. It is impracticable and you cannot do it. If you draw out fresh manure, good bye to your grass.

Mr. Field — I can readily see where this resolution might be misconstrued. I might differ with Mr. Arnold as to the language used here, because I believe that clover is the better method of enriching the lands of this state, whereas he says top dressing. I suppose it would be understood to mean top dressing where manure is used, and therefore I do not know that it would be necessary to change it.

I believe clover is the best means of enriching a large farm, not that I would not use all the manure that could possibly be made, but I would put it on just at the time when I had the most leisure to do it. I would put it on in the winter when my teams had little to do, and draw it from the stable every day, as this gentleman suggests; but as to its being so much better than the same class

of fertilizers taken from the yard, I doubt very much. I do not think it would do any special harm to draw it into the yard and let it lay till spring and haul it out, but the trouble is to handle it so many times, and you certainly get all the benefit if you take it directly from the stable into the yard.

Mr. Arnold — Chemists have discovered that all the enriching qualities of the manure are taken up by the soil. For instance, if manure is put on the surface, whatever water passes through the soil contains no qualities that will tend to enrich it, or produce growth, if it passes through one foot of earth; if it passes — the most of it — through six inches, and the large proportion of it through two inches. If that is true, and the manure goes down, and it does not go up, what is the use of burying it so far that the plants cannot get to it, when all the roots of vegetables are on or near the surface? It has been shown, I think, that very little of the enriching qualities of manure escape in the air. We do not think as much of ammonia as we used to. That is not all there is of our barnyard manure. I believe it is best to draw out manure when we can do it the cheapest, because manure is sometimes more expensive than productive.

The resolution was then voted upon and adopted.

Mr. Plumb then offered the following resolution, which was adopted:

"*Resolved*, That where practicable it is better for the average farmer to convey the farm manures direct from the stables and spread upon the land as fast as made."

Question — Will clover seed sown in September along with fall wheat give as good results as seed sown in early spring?

Mr. Chipman — I have tried it twice and my experience is that clover sown in the fall kills before spring.

Mr. Main — I move that it is the sense of this convention that any man that sows clover seed in the fall is an imbecile.

Mr. Arnold — I take exceptions to that. We have several imbeciles in Trempealeau county, if that is true. If you have a sandy soil you can sow clover seed right after harvest on the stubble, and you will have the best results of anyway, but under other circumstances it is nonsense to sow it.

Mr. Peffer — Clover seed can be sown in the fall, provided it is sown late enough and just as it grew, with the hull and shucks, so it will not sprout till spring.

Mr. Olds — If the ground is in readiness to receive the clover seed, now is a good time; any time from this on till the snow is gone is the best time for getting clover out of the ground.

Question — How can wild oats be killed?

Mr. Chipman — The best way I know of is to plant the ground to corn and cultivate it thoroughly; and the second best way is to seed it to clover and take the first crop for hay, and feed and pasture it thoroughly for several years.

Judge Bryant — Mr. Tollefson, who was a member of the legislature some years ago, and lives in this county, bought a farm very cheap because it was infested with wild oats which had been brought there in some seed from Canada, and he plowed the whole farm of I think eighty acres, and planted it to corn, and the next year seeded it down to oats and clover, and put just as many sheep on it as he thought the farm would possibly carry, for two years. At the end of that time, he told me when he plowed it up there were no more wild oats.

Question — How much more does it cost to stall-feed, having to buy all feed for cows in the dairy business, than in pasturing stock in southern Wisconsin?

Mr. Field — I have had no experience in that, but on general principles I should think, as dear as labor is in this country, it would be much more expensive.

Mr. Goodrich — In dairy farming, for the purpose of milking cows, to have them come in about the first of September, and feed them in your stalls through the winter and get all the milk possible from them, and carry your milk to the creamery, selling the cows that prove poor milkers in the spring when they are in good order, and allowing them to go dry in July and August, the hot and busy months on the farm, will pay the best.

Question — Why should winter wheat be perfectly successful from the year 1834 to 1844, then fail almost entirely until 1877, after which be again successful?

Mr. Plumb — I do not think that is true.

Mr. Hatch — I think that is an historical question.

Mr. Plumb — I find that after a series of successful winter wheat seasons, we have a series of unsuccessful ones from climatic causes, and the growing of winter wheat is suspended. If it is resumed at the right time, you will have another successful series. If you follow the history of winter wheat in this country, leaving out the attacks of the weevil, you will find that to be the case.

Whenever you have a dry time and your winter wheat goes into winter quarters with the ground dug, it will probably be dead in the spring. If we have two such seasons you will give up raising winter wheat entirely, and you may suspend it for ten years or five years until you by some chance strike into it again.

Mr. Williams — I think it is in the wind, and how it is at a certain time in the spring. The reason we had such success last year was because we had a great deal of south wind at the time the frost went out of the ground. That is what protected the wheat, and that is why we had such a good crop.

GENERAL TALK RELATIVE TO EXPERIMENTS UPON THE EXPERIMENTAL FARM.

By Prof. W. W. DANIELLS, UNIVERSITY OF WISCONSIN.

I will call your attention for a few minutes to the experiments on the University Farm. You will remember that a year ago at the convention, I called your attention to the success we had had in raising winter wheat; that we had raised this Fultz wheat for seven years with an average yield of something over twenty-nine bushels to the acre. This included one year in which it was winter killed. The last year the yield of our Fultz wheat was 54.4 bushels, each of 60 pounds, to the acre. The weight of a measured bushel was 62¾ pounds. This gives us an average yield of this variety for eight years of 32.4 bushels to the acre. This variety has been raised quite largely during the last year in the region about Baraboo and about here, and I have been told that it was raised to a considerable extent about Sparta. I have never yet heard of a yield of this variety that was not very much

more than an average yield of winter wheat in this latitude. As you all know, large quantities of it have been sown in this vicinity and in other portions of the state this fall; what the result of this winter will be upon it, it is impossible of course to tell at the present time. The winter, of course, has not been a favorable winter for wheat, but I am hoping that there will be something brought out of this that will be of value to the state.

Mr. Field — Do you think this winter has been particularly unfavorable, simply because we have had no snow?

Prof. Daniells — Not so much that as because we have had a number of days when the days have been warm and the nights cold. Continuous thawing and freezing is what injures wheat.

Mr. Field — Do you think it will do that if the ground is quite wet on top?

Prof. Daniells — I should not want it very wet on top. If the soil possessed a fair degree of moisture, it probably would do better than if it was wetter or dryer. If the soil is wet, continuous freezing will destroy it, also by producing ice on the surface. I think the winter so far has been more than usually unfavorable for wheat, and yet, two weeks ago, as I rode over the country, the winter wheat was looking in fair condition, not as brown as it frequently is at this season of the year, and not by any means killed. I have not examined the plants critically.

Mr. Plumb — I have made a careful examination of several fields and failed to find the least injury.

Prof. Daniells — Of the Clawson wheat, which is regarded so highly by the farmers of Michigan, and for which they have almost entirely, within the last three years, discarded the old Diehl wheat, which gave such excellent results, we have had a yield during the past year of fifty bushels to the acre. Last year I called your attention to the fact that this wheat did not kill during the winter that the Fultz wheat killed. We have raised it now for four years, with an average yield of 41.8 bushels to the acre. Its indications are every way favorable. It has not yielded at any time as much as the Fultz wheat, neither has its weight been as great, but it certainly promises well; and inasmuch as it did not kill during the winter of 1875–6, it promises to be a very

hardy variety, more so than the Fultz wheat. I am looking for further indications that these varieties will replace to a very large extent, over especially the timbered portion of the state, the growth of spring wheat. It seems to me that to those who are determined to raise wheat, either one of these varieties will prove more valuable than spring wheat. This is, of course, not proven yet by any means, but the indications are that way. The result must certainly be considered as favorable. We have two varieties of winter wheat which have been sent here: the Golden Straw, a Tennessee variety, and the Silver Chaff, a variety from Canada. Neither of them, so far, promise to be of any very great value. However, we are still trying them. The indications so far, as we gather from our experiments, are that the valuable varieties, if there shall be any really valuable for this climate, will be the Fultz and the Clawson.

The yield of the Prussian last year was thirty-eight bushels to the acre. As compared with the others, we do not consider it of any value for cultivation.

A year ago last summer the Michigan millers held a convention, and declared they would not mill the Clawson wheat, and advised farmers not to sow it. The farmers sowed about as much again as they had sowed the previous year. There is no trouble in getting a market for it. The millers do buy it, and do grind it. A few years ago Mr. Delaplaine told me he was buying wheat in Maryland and Virginia, where they raised the Fultz wheat, and the millers complained of this in precisely the same way. I have never known any difficulty in selling it. Mr. N. W. Dean had some near this city last season and sold it for about twenty-five cents per bushel more than the market price. However, he sold it for seed. A gentleman from near Sparta told me it was sought after there with very great readiness; that it was considered a most excellent variety. Practically I know nothing of its milling qualities. It is not a hard wheat like the old Diehl, but a much softer wheat. I have no hesitation in saying I do not think that is a point that we need consider at all. I thoroughly believe that if you raise the wheat, and get it of good quality, you never will be troubled in the market.

The experience of the Michigan farmers shows that the complaint of the millers did not in any way affect the market, although they raised about twice as much of this Clawson wheat the year after the millers advised the farmers not to raise it. I think the trouble is imaginary rather than real.

We raised during the last year the same varieties of spring wheat we raised before; and the Red Mammoth, which we have raised for a number of years, again proves to be the best variety. This wheat has yielded an average of 19.4 bushels to the acre during the eight years that the Fultz has yielded 32.4, a difference of 13 bushels per acre, and during one of those years the winter wheat killed entirely. This is the variety that was most commonly raised in this vicinity eight years ago.

A member — Is it what we used to call the Red Odessa?

Prof. Daniells — It is not what we used to cultivate upon the University Farm as the Odessa. I have never known it under any other name than this. We obtained it of some farmer in this vicinity in 1869 or 1870. We afterwards got some seed from the department of agriculture. The varieties were precisely the same.

A member — Has it any beard at all?

Prof. Daniells — No, I think not. It ripens about the time of the other wheat. It has a fair sized berry. Last year, the seed we sowed weighed fifty-six pounds per bushel, and the yield we had was fifty-seven pounds per bushel. It does not generally weigh sixty pounds to the bushel. It, however, usually weighs more heavily than the other varieties. The White Michigan wheat yielded, this year, 57.5, but the seed was not as heavy. In Touzelle, one measured bushel weighed only thirty-two pounds. It was injured, as all of the wheat was, by the dry season.

In relation to the barley, I have the same story to tell you that I told last year; that we have raised the same four standard varieties — the Manshury, Common Scotch, Saxonian and Probstier. The Manshury, for eight years, has averaged 49.3 bushels to the acre, of 48 pounds each. This I consider a very excellent yield. The Chevalier we have raised for nine years, with the exception of the years 1873 and 1875. The yield for the seven years that we have raised it, has been 30.7 bushels per acre.

The Common Scotch is a barley that was imported from Scotland by Alexander Findlay, of this city. The seed was given to us in 1872, and we have raised it continually since that time. He said it was a variety that was thought very highly of in Scotland, and he thought it would prove a more than usually excellent variety here. It has averaged during the last eight years, 36.6 bushels to the acre. That is an average of 12.7 bushels in favor of the Manshury.

Saxonian barley we have raised for the last nine years, with an average yield of 35.4 bushels to the acre. The Probstier barley we did not raise in 1873, 1874, 1875 and 1876. We raised it two years before that and three years since, with an average yield of 42.2 bushels per acre.

This shows very favorably for the Manshury barley, it yielding more than either of the other varieties, and consequently where one is desirous of raising barley it is certainly profitable to invest in it.

Now in regard to oats, last year's experience precisely corroborated the experience of previous years. The White Schonen gave us 96.2 bushels per acre. The average for five years has been 80.5. We have had the White Waterloo only three years. This year it yielded precisely the same as the White Schonen, but during 1878 the yield was five bushels less, and during 1877 the yield was three and one-half bushels less, so that during the three years we have had them both under cultivation the White Schonen has yielded nearly three bushels an acre more than the other. They both seem to be exceedingly valuable varieties. The indications are that the White Schonen is the better variety. One gentleman in the state discarded the White Schonen oats and is raising the White Dutch oats, and while he is a very successful man in his business, I think that this time he has made a change for the worse. During the last year the White Dutch have yielded very much less than the White Schonen.

In corn, the old varieties that we have raised so many years — White Australian, Cherokee and Yellow Dent — have given fair results. I think this is the first year that we have cultivated the White Australian that it has not yielded at least as much as any

of the other varieties. This year it yielded 80.1, while Yellow Dent yielded 84.5 per acre. The Cherokee yielded 83.2. This yield is in favor of the Yellow Dent rather than the White Australian, because the White Australian requires a little more cultivation, being a smaller variety, and needs to be planted more closely and is not as easy a variety to husk; that is, being a hard corn, rather than a soft one. It is a flint corn.

The variety called Lysaght we obtained from Mr. William Lysaght, of Belleville, several years ago. It is a large variety and he thought very highly of it. We obtained it for the purpose of seeing if it was as valuable a variety as those we were already raising. In three years trial it has not yielded as much as any of the other varieties. The Cherokee has yielded 86.1 bushels, that being the least of the three varieties we have cultivated so long, and that is 8.3 bushels more than the Lysaght has yielded during the same period.

Mr. Hayden instituted an experiment to test the comparative productiveness of four varieties of flint corn. This, I think, was done because Mr. Wood, of Baraboo, thought the Waushakum was one of the best, and perhaps the best and the earliest flint corn raised. It ripened later than any of the other varieties, the White Australian and New England and Compton's Early. The New England is the common eight rowed yellow corn, sometimes called Yankee eight-rowed flint corn. The plats on which these varieties were grown were small plats. Compton's Early yielded 63.5 bushels to the acre, White Australian 75.4; while the yield of White Australian in the field this year was 80.1 bushels. The New England gave 61.8, while the Waushakum gave much less than either of the others, and ripened ten days later than the latest of the other varieties.

With potatoes, the Snowflake, taking quality and yield together, we think stands ahead. The Manhattan, Centennial, and Bliss's Triumph all yielded a little more. But the Manhattan is not a good potato; it is decidedly poor. Bliss's Triumph is a good potato, but not as good as the Snowflake; and the Centennial is a fair potato. Neither of them are potatoes for which one would be willing to discard the Snowflake, even though it does not yield quite as much.

This year we are to try an experiment with a variety which I obtained this winter at Auroraville, called Jordan's Prolific, which, it is claimed, will yield about twice as much as the Snowflake. While it is not quite as good as the Snowflake, it certainly is a most excellent potato. If it proves to be all that is claimed for it in the vicinity of Berlin, it will certainly be a very valuable addition to the potatoes that we now have in cultivation.

We have two or three new varieties in cultivation, but we have not tried them sufficiently to know whether they are of any value or not.

The Ruby potato, which has been spoken of so highly for the last three or four years in the east, with us gave a poor yield — 97.5 bushels per acre — and I certainly do not consider the quality of ours good. It is not to be compared with the Snowflake or the Early Rose.

We raised the Beauty of Hebron for the first time this year. The quality is put down as good. I tried all these varieties myself, but we have not raised them enough to know what they will yield. We will raise enough next year to know something about their productiveness. The quality is good, but it is not as good as the Early Rose, nor nearly as good as the Snowflake. It is not as good as another variety we had in cultivation last year, the Dunmore, which is an excellent potato, and the quality of it, I should think, fully equal to the Snowflake.

Mr. Sloan — I would like to ask if your grain lodges?

Prof. Daniells — One or two varieties of oats, as you will see by the report, did not stand up; it was necessary to cut them with a scythe. If no storm comes about the time of their ripening, they will usually stand up. They seldom fall down without a driving storm.

Mr. Sloan — Does lodging affect the yield?

Prof. Daniells — It depends, of course, upon the time when they lodge. If they lodge early after blossoming, that is, before they are quite thoroughly filled out, it certainly does; and another thing which influences the yield, if you allow them to get fully ripe before harvesting the waste is much greater when they are lodged than when standing.

Mr. Sloan — How about winter wheat?

Prof. Daniells — It does not lodge to any extent. The Fultz wheat has an unusually stiff straw.

Judge Bryant — Mr. Dean told me it did not make any difference how much the yield was with the Fultz, it always stood up, but the Clawson laid down.

Prof. Daniells — I have seen fields of Clawson wheat that would yield thirty-five or forty bushels to the acre where there was not, as far as I saw, a grain of it lodged.

Mr. Babbitt — I notice you have an unusually good yield. How about the amount of land that is cultivated?

Prof. Daniells — The amount of land that is cultivated in these wheat experiments is one acre for each variety, half an acre for each variety of oats, and there is something over an acre of each variety of corn.

Mr. Chipman — I noticed in your fertilizers there was a good deal of difference in the yield. What was the cost of the fertilizers compared to the cost of stable manure?

Prof. Daniells — Stable manure probably costs less than any one of them. I do not know in regard to the cost of these different manures. The experiment is for the purpose of finding out what ingredients the soil is in need of, rather than to find out the cost of the different manures. Stable manure contains, besides the organic matter which is present and which is of value in its decomposition, the three mineral ingredients that are necessary in the growth of plants, and about in the proportion in which plants need them: phosphoric acid, and nitrogen, and potash; so that stable manure is a complete fertilizer; that is, it contains all the ingredients that are required by plants. You will see in the next experiment nitrate of soda was used; that was taken simply for the nitrogen, to see what the growth would be without the two other elements, potash and phosphoric acid, being put on.

Peruvian guano contains nitrogenous matter, principally in the form of ammonia, in larger proportions than the other ingredients. Hard wood ashes contain potash. Then we put on potassium chloride. That contains potash in another form, and we put them on in such quantities that in each case there should be the same amount of potash per acre.

Superphosphate of lime we put on by itself. That is used for the phosphoric acid.

The object in these experiments is not to get at the relative cost of these different fertilizers, but to find out what is going to produce the best results when applied to the soil, by allowing the plants to analyze the soil for us, by taking certain plats and putting nothing on, taking other plats and manuring them with these special manures, and putting stable manure on others, that containing the ingredients wanted by plants in just about the proportions in which it is wanted, so that it is what we call a complete fertilizer, and comparing the results on these different plats, not to find out which is the cheaper manure, but to find out what the soil is in need of.

Mr. Sloan — Do not these experiments show that none of these fertilizers are of any value?

Prof. Daniells — The experiments do not even show that at the present time.

Mr. Sloan — Is not there an average yield on the unfertilized plats each year?

Prof. Daniells — In some cases the unfertilized plats have so far yielded the most. The experiment does not show anything, in my opinion, at the present time; no conclusions can be drawn from them. I think three years is not sufficient time in which to cultivate the land and draw any conclusions. Take plat four, for instance. In 1877, none of the plats had any manure. Following the years right along, in 1877, plat four gave 420 pounds of ears, and 392 pounds of stalks; in 1878, 690 pounds of ears and 414 pounds of stalks; in 1879, 504 pounds of ears and 359 of stalks. In each of the three years that plat has had precisely the same cultivation.

Mr. Sloan — Is not that more than an average yield of the other plats?

Prof. Daniells — I should presume likely it is. It is certainly a considerably larger yield than some of the other plats have given. Now during the three years that ground has had the same treatment, it never had any manure; what conclusion can we draw from that?

Mr. Sloan — The yields, I presume, are good for the plats of ground, but as relates to the other plats, the one not manured at all seems to be fully up to the average, and it would seem that you lost the manures placed on the other plats. Is not that the conclusion?

Prof. Daniells — Yes, if you should draw a conclusion from these three years; but what I want to call your attention to is that in my opinion it is not possible to draw any conclusion from these three years during which they have received the same treatment; the yield varies greatly. In the other plats there have been only two years in which they have received any different treatment from that plat.

Now, in my opinion, you cannot draw a conclusion safely, from those two years, of the value of the fertilizers upon any plat. If you take those two years alone, I should say it would be better for a man not to use any fertilizers than to use them. I have not looked it over enough to say whether that would be true in regard to all the plats; it certainly would be as to some of them. I have left the matter without any discussion, because I did not believe one could safely draw any conclusions from a two years' trial. It is too short a time to carry on the experiment. What do you think of a plat that raises 420 pounds of ears in one year, and 690 the next? That is a difference of over fifty per cent. That was on the same ground, and treated the same way, and the ground not manured at all.

Take plat one, which received a heavy coating of stable manure; the yield was considerably more than double in 1878 what it was in 1877, and I have known that much difference in plats of land in the yield of potatoes, where the land was treated in precisely the same way, and the plats were adjacent to each other. Then you will see that the yield on plat four, which received no manure, has steadily increased during these three years, while plat one, which was heavily manured, has diminished in yield from last year to this. From such results I cannot get data upon which to base conclusions. The experiment will be conducted through five or six years, possibly longer.

Mr. Sloan — I suppose these unmanured plats had been highly manured previously?

Prof. Daniells — There never was any manure upon them. The land was never plowed until a year before these experiments began. We took virgin soil on which to try the experiments, in order to know precisely how the soil had been treated in each case from the beginning of the cultivation.

Question — What shall be done about fences?

Mr. Field opened the discussion of this question, advocating the use of wire fences, on the ground of the expensiveness of the common wood fence, and its inefficiency. He thought a cheaper fence should be built or none at all.

Mr. Babbitt — I am really surprised that as good an agriculturist and as smart a man as Mr. Field should in this day of civilization, immediately after having espoused the cause of our reverend friend from Milwaukee, who has already started the society to prevent cruelty to animals, — advocate such an outrageous, infamous, barbarous, contemptible thing as the barb wire fence.

Mr. Field — I believe the gentleman lost a valuable animal some time ago.

Mr. Babbitt — My experience is the experience of every farmer that lives in the neighborhood of a wire fence. I have good fences around my yard. One day the Lord in His infinite mercy sent a strong wind up the valley, and the fence came down. That was after nine o'clock at night. Before five o'clock in the morning my beautiful animals came down into the yard, and they looked as though they had been through the war. My honest opinion is, that if they had received the injuries they did in any other place than in front of a poor widow's establishment, some one would have had to pay for it; but there was a lady there who could not afford to build a fence, and she ran a wire along by the road about half a mile from my place. My horses felt pretty nice, and they skipped around there and undertook to go in and see what they could do. I suppose they wanted to show themselves off; they were not very hungry. They came back all torn to pieces. I was offered $1,500 for one of those animals five or six days before the occurrence, and to-day I would be willing to sell the animal for $150.

Now the protection and the encouragement that the farmers are giving these speculators is really a disgrace to the farmer. They are cruel to start with. Every single animal has got to earn his experience as the boy does, and he does it at the expense of his owner. The farmers can better afford to-day to advocate a tax to pay for fencing every rod of land in Wisconsin that needs fencing than to pay the damages that one of these days they will have to pay. The only aspiration I have in life is to see the time that I can go to the legislature and introduce a bill — and pass it — which shall send to the penitentiary every farmer in this intelligent community who will advocate that species of barbarism, the wire fence.

Mr. Field — My friend Mr. Babbitt will have to come to it pretty soon, for nearly everybody is advocating it, and nearly everybody is building it that is building new fences. Our railway corporations are building it, and our friend Babbitt has got to come to it. If he wants to build board fences that cost three or four times as much, he is at liberty to do it from this on and be called an old fogy.

Mr. Babbitt — The Hon. I. C. Sloan is here. I believe I can secure him, and I believe he will take care of me fully and make you fellows that put up wire fences pay for it. I would like to hear from him on that subject.

Mr. Goodrich — I am a Rock county farmer and have four or five miles of fence on my farm, and I have learned that from the very hour I get a nice board fence completed it begins to decay, the timber to rot, the nails to rust, the wind to whip it one way and another, and all the elements of nature combine to tear down the barrier that you have put up. I have found from practical experience this year, keeping some sixty head of cattle and a dozen head of horses, that the most practical and perfect fence I ever built to turn stock, is the barb wire. I simply stretched it from tree to tree — second growth trees — or from grub to grub, using them as posts. Knowing that my cattle were not acquainted with that kind of a fence, I strung along on the wires, limbs, hazel brush, or anything that was light, to show that there was something there. I did not have a single creature injured by the wire.

My fence was between my grain and my meadow and pasture, so that nobody's stock but mine was there. I used two wires where the ground was level, and three where it was side hill. Two wires will turn horses or cattle every time, and it will cost about ten cents a rod for each wire, which is twenty cents a rod for a fence, and a couple of men can put up eighty rods of it in a day. The posts cost nothing; they are growing trees — growing every hour, instead of tearing and rusting and blowing down.

I have lived in Wisconsin forty years. I have lived on the prairie, where it has always cost something to build a fence. I have lived in a neighborhood where we have considered that a man that could not keep his farm fenced ought not to farm it. I have seen the grubs grow up along the line of our fences until every fence that we have maintained for years at a great expense was a row of grubs and weeds, and anything and everything that was an incumbrance and a disgrace to a farm; whereas for the last few years we have taken away our fences and grubbed out the grubs, removed the old bottom logs, plowed up the soil, and sowed our crops clear up to the line of travel in the highway, allowing travelers to use whatever of the road was necessary. When you come to work your corn, in the room of coming out and turning around by the fence, and leaving a strip of weeds between the fence and the grain, you can drive out in the road and turn around. With a reaper and mower you can do the same.

When we come to learn that it is every man's business to take care of his own stock, to keep it on his own premises, and to raise the most he can on his own land, we will all discard our fences. I have traveled in Iowa and Minnesota, and seen the grain growing by the side of where I drove my buggy, leaving only the width of travel instead of leaving this row of weeds.

Mr. Babbitt — If you will come to Beloit, I will show you within a ride of ten miles, a species of barbarism that has been perpetrated upon animals that has not been excelled, but is parallel with the barbarities of the bull fight that King Alphonso has exhibited to his subjects.

Mr. Goodrich — Your horses never ran on to the fence twice?

Mr. Babbitt — No, sir, because three of them were killed.

Mr. Millett — I have never heard of cattle being injured by barbed wire. Horses are apt to get to racing and run on this wire. Farmers in our vicinity use two wires and a board in the center, so that horses can see it.

Mr. Adams — Some time ago, I saw an advertisement of the American barb wire, which was said to be so constructed as to obviate all the difficulties which occur. I sent for a specimen. I would like to know if any person has used any. It is a single wire with a scroll around it, and short barbs, not long enough to injure any animal that runs against it. It costs the same as the ordinary wire, and it seems to me it is much better.

Prof. Daniells — I have just figured up here what it would cost if we took a 160 acre farm and divided it up into 20 acre lots. It would require 1,280 rods of fence, which, at 40 cents a rod, would be $512, as Mr. Field estimated the three wire fence would cost. A board fence at $1.25 a rod would cost $1,600.

Mr. Field — I desire to answer Mr. Babbitt's point, that it would be cruelty to animals. I had forty cows on my farm that never knew what a wire fence was until I turned them out of a lot of twenty-five acres, with a nice board fence that will keep pigs or anything else, into seventy-five or eighty acres inclosed with a three-wire fence, and a corn field close in sight, feed not over good, but fair; and I watched that stock when I turned them in, to see what they would do with that fence. They walked as straight for that corn field as they could march, but when they got to that wire fence, they did not go any farther. There were three wires, and not one of those creatures drew a drop of blood. They came up to those wires, and smelt of them, and it pricked them a little bit, but I do not think it drew blood on one of their noses. I think the highest wire was four feet two inches, and the lowest eighteen inches from the ground.

It has been a perfect fence for my cows all summer. I have the posts two rods apart, and on the side where I had corn close up to the fence, I put two slats between and put some little wires in, which cost me about five cents a rod more. The slats go up and down, and hold the wires so they will not hang so far apart if they happen to get a little loose, as they sometimes will if they

are not drawn very tight. One of my cows got a little used to them after awhile, and she would put her head through just as carefully as I would, and eat the grass on the other side. It was wonderful to see how carefully she would do it. She would do it just as carefully as you would walk along this floor if there were little pins sticking here and there. I have not had the least difficulty with that fence. It has been a perfect and a cheap fence. It will keep calves and yearlings without the least trouble in the world. They never get through. I put young calves in there that were just weaned, and they never got through.

Mr. Babbitt — I think a good thoroughbred Short-horn would know enough not to go near the fence.

Mr. Bryant — I got some of this fence not long since. I thought it was pretty good. Instead of having the slats lengthwise, we have a board sixteen or eighteen feet long, with little boards between, put there for the purpose of having something light colored for the cattle to see.

Last summer I built a little of that wire fence, for the purpose of catching just such fellows as Babbitt's. I am in the habit of leaving my front gate open, and every morning I discovered one of my neighbor's cattle in the door yard, so I shut up the gate, and took down a few rods of fence and put up a few rods of wire. The calf never went out but once.

Mr. Babbitt — I would like to know whether you paid for the coffin that inclosed the remains?

Mr. Chipman — I have about two miles of wire fence. I do not think any cattle have been injured. Young cattle and old cattle and colts have run against it, and I do not think they have injured themselves once in two years. One colt was injured on my premises, but it was a colt that had injured its neighbors three times its value. It was kept home after that.

Mr. Babbitt — This is really a serious subject. I will give you the name of a veterinary surgeon at Beloit, Dr. Kuhns, and he will inform you that seven eighths of his practice in the season last past has been in sewing up and taking care of horses that have been cruelly treated by this barbed wire fence. We have hunters down there, and everything of that kind. They all have dogs.

Every man is in for fun; and we do keep pretty high toned horses; they feel quite well. They never go roving around on other people's farms for the purpose of getting food, but they are occasionally out for the purpose of sowing their wild oats, and we have got to look out for their interest pretty well.

Mr. Peffer — In our neighborhood we have a manufactory of fence, and use slats which are fastened with small staples on the wires. They use five and seven wires. They are not so big, and hardly half as strong as the barbed wires, because there they use two and twist them together. I cannot tell exactly the size, but they are giving very good satisfaction in our neighborhood. Some have been put up two years, and some a year, and I never heard anything against them. There are no barbs about it; there are pickets up and down about ten inches apart. It is a patent, and is manufactured in Waukesha. I think the wire costs 45 cents a rod. It comes rolled up in rolls of 200 yards, I think. They have the posts four rods apart instead of two.

Mr. Field — Are the slats near enough together to stop pigs?

Mr. Peffer — No, they are ten inches apart.

Mr. Chipman — If you want to stop pigs, you want to have about six wires.

Mr. Field — You cannot stop pigs with wire.

Mr. Kellogg — If we could induce the manufacturers of barbed wire to make the barbs short, I do not see why they would not do the same execution, except in case of killing colts, and still protect stock. I have never seen a barbed wire fence but what looked savage.

Mr. Field here offered the following resolution:

"*Resolved*, That the thanks of this convention are due and are hereby tendered to the different railways of the state, who have so generously furnished reduced fare to all who attended this convention."

Which was unanimously adopted.

Mr. Field — There is a matter I intended to bring up, but it slipped my mind. I am not here for the purpose of encouraging people to emigrate to Iowa, but I know a good many who are

going. I am in the position that the doctor was when asked whether he was glad to hear that people were sick. "Well, no," he said, "he did not know as he was glad to hear they were sick, but if they were sick he was glad to be sent for.". Now if you are going to Iowa or any place beyond, I would be glad to have you examine the lands on the C. & N. W. or Illinois Central roads in Iowa before you buy. I would be glad to have you correspond with me on the subject, and I will give you any information in regard to those lands. I think they are as good as lays out-doors.

Mr. Bryant — The gentleman expects to make that his home, and may run for congress, and he would like to have a good class of people to come from Wisconsin and vote for him.

Mr. Field — I will say further, as long as the gentleman puts the words in my mouth, that we shall have a fine class of people; as fine a class as you can find anywhere in Wisconsin, and I know that is as good as any in the world.

A member — How are you off for grasshoppers?

Mr. Field — We have never had any in that vicinity but one year, and I had rather take my chances among the grasshoppers in Iowa than among your chinch bugs.

Mr. Chipman — I would like to ask you whether you would advise a man that is well situated, and has a comfortable farm, to sell out and go to Iowa.

Mr. Field — Certainly not. I would not advise a man who is comfortably situated anywhere, to move out there, but to stay where he is. I would not advise a man in New England, where the soil is so bad and the stones so numerous that it is almost impossible for sheep to live unless their noses are as sharp as a spear — to move to the west; but a young man like Millett I would advise to sell out, and go west and grow up with the country.

Mr. Millett — I claim to have a better farm than ever was in Iowa.

The convention then adjourned.

NORTHWESTERN
DISTRICT AGRICULTURAL CONVENTION,

Held by appointment of the Regents of the State University of Wisconsin, at Kneeland's Hall, Galesville, January 6–7, 1880.

OFFICERS OF THE CONVENTION:

PRESIDENT,

HON. ISAAC CLARK.

SECRETARIES,

GEO. W. WEBB, CHARLES N. HERREID.

At one of the last meetings of the Board of Regents of the State University it was wisely decided that, by way of experiment, four conventions, for the purpose of discussing topics particularly pertaining to agriculture, should be held during the winter in different parts of the state. It was further agreed that each of these meetings should be attended by a representative of the State University Board of Regents, State Agricultural Society, State Horticultural Society, and the Nothwestern Dairymen's Association, and the traveling expenses paid from the funds of the agricultural department, provided they did not exceed $500.

TUESDAY, JANUARY 6, 1880.

At ten o'clock Kneeland's Hall was crowded to its utmost capacity by citizens and by farmers from the surrounding country. The hall had been artistically ornamented with evergreens. Back of the speaker's stand was seen the appropriate motto in large letters: "Agriculture feeds the nation."

The convention was promptly called to order by the president, Hon. I. Clark, who briefly stated the object of the meeting, and then introduced G. Y. Freeman, Esq, who delivered the address of welcome. Mr. Freeman spoke for a few minutes in an exceedingly happy, witty and humorous strain, the speaker's voice being frequently drowned by the laughter and applause of the large audience.

This was responded to by Hon. Hiram Smith, of Sheboygan Falls, who was then introduced.

By some inscrutable method, he said, he found himself the mouthpiece of the cause he was chosen to represent. After having very gracefully accepted and replied to the hearty welcome, complimented the arrangement of the hall, and the large, intelligent looking audience before him, he referred to the good old days of our forefathers, when the young ladies had to weave and spin, and their work was taken as a criterion as to the marriageableness (a word as hard as the ordeal!) of such a party. He also spoke of the absolute necessity of having persons in their proper places, and this applied particularly to agriculture. If a person in early life has had aroused in him a special desire for some particular calling, or even for raising particular crops, then that person ought to bend all his energies in that direction. By way of illustration he referred to certain localities where only certain kinds of products could ever be successfully raised. Wheat, beef and wool have practically been driven from our state by the discovery and cultivation of the vast plains of the west. The tendency of raising wheat is to exhaust the soil. This is the result here and it will be the case in Dakota, unless the merciful chinch bug will drive them to mixed husbandry.

The speaker referred to the great advancement in agriculture, the hardships of the early pioneers in this branch of industry. They then knew of no other method than the slow process of hard labor. Many who now gracefully preside in costly mansions, once probably built fires in log cabins.

Music, "Greeting," by M. Carhart and assistants.

Senator Arnold felt called upon to explain. In the morning he had introduced the two Smiths (Hon. H. Smith, of Sheboygan

Falls, and Hon. J. M. Smith, of Green Bay) as honest men, but when, at a later stage of the proceedings, the one came to talk about butter making and the other about strawberries, they would tell such big stories that it would be hard to believe them. [Laughter.]

On motion, it was decided that a few minutes should be spent in discussing each paper read before the convention.

Convention then adjourned until 1:15 P. M., sharp.

AFTERNOON SESSION.

On reassembling, Mr. Carhart again led his quartette in "'Twas Rum that Spoiled my Boy," a choice selection, that received rounds of applause.

Hon. Hiram Smith, by request, proceeded to explain the Cooley system of butter making.

The old method of making butter is fast being supplanted by the improved method of the successful dairyman. Cream was injured by being exposed to the atmosphere, hence the sooner it could be separated from the milk the better. It is lamentable, indeed, to look back upon the yearly waste of work, enterprise and property. Persons moved slowly in this improvement. When I had first heard of the "Cooley system" I enthusiastically brought the news home to my wife, but she, having previously heard of a great many other new things, was slow to believe. Finally we concluded to try the new plan, but unfortunately it was a failure, and, woman-like, she condemned it. Immediately I went in search for more detailed information, but not wishing to expose myself, I set a man at work, but the fool didn't understand his business. [Uproarious laughter.]

The milk should be placed in certain cans and submerged in a tank containing ice water. At a temperature of 45 degrees the milk and cream soon separate. The milk is drawn off through faucets. The cream should be left to "ripen" about twenty-four hours, when it is reduced to a temperature of 60 degrees and churned until the grains of butter are of the size of wheat kernels. A handful of salt is then put into a pailful of water and poured into the churn, when the buttermilk is drawn off. After

three quarters of an hour some more water is put in and a few turns given to the churn to wash the butter. Salt is then put into the churn, a few more turns and the salt and butter are thoroughly mixed in the churn. The butter is then ready for packing.

The speaker, for the last year, had 50 cows. Net profit from each, $50. All the cream had been worked into butter by an 18 year old boy, who took the gold medal for the best butter at the great New York fair (subject of course to the "old boy!")

The president then introduced Hon. J. M. Smith, President of the State Horticultural Society, who proceeded to address the convention on the subject:

"WILL HORTICULTURE PAY IN CONNECTION WITH THE FARM?"

The speaker alluded to the historical fact that agriculture has always been honored and dignified. Contrasted the agricultural standing of the leading nations of the present day. This branch of industry controlled the destinies of nation. Hence the importance of having intelligent and industrious men in this calling of life, and not such as simply make a living. What we need is more homes, within the full meaning of that word. The speaker then took for example two young men as they start in farming. His vivid, impassioned pen picture of how the one would embellish his home and gardens, containing fruit and shade trees, etc., while the other would care for nothing of this kind that would have a tendency to make home more attractive and agreeable, was earnest and impressive. The speaker next mentioned the varieties of fruits, strawberries, etc., that could advantageously be cultivated, also the manner in which it should be done. On his father's farm was a bed of asparagus that was over eighty years old.

DISCUSSION.

Hiram Smith — What is the cause, and what would you suggest as the remedy for the untidy appearance of so many farms?

The speaker thought it was not on account of a lack of taste but through sheer carelessness.

The president wanted to know the best method of raising asparagus.

Answer — The richer the soil the better and larger crop you can raise. Plow six or seven inches in depth. Use roots one year old. One farmer set them in rows three feet apart, and two feet apart in the row. After the roots are in the ground put more manure on the ground. If you get roots from a distance, guard against getting dead ones. Beds set in the fall are very apt to get killed during winter. How can you get good roots? Get seeds and raise them yourself. Sow the seed as early in the spring as you can. It grows slowly and needs constant attention. Put the seeds one inch apart in rows eighteen inches apart. After the plants have been one year in the ground they may be cut and transplanted. The beds should be manured annually, but great care should be taken not to disturb the roots.

Question — Is there any method by which the strawberry season may be lengthened?

Speaker suggested the Kentucky and Wilson varieties.

H. Smith — Is there any method by which the dealer could be made not to put the bottom more than half way up the strawberry box? (Laughter.)

The best time for setting strawberry plants is in the spring; and they should be set about three feet apart each way The larger varieties are unreliable. The largest strawberry crop the speaker knew of was at the rate of 446 bushels per acre.

The next on the programme was a paper on

OURSELVES, PRACTICALLY AND OTHERWISE CONSIDERED.

By Miss MARY RHODES, Trempealeau, Wis.

A poor subject, you say; one that no one but ourselves cares anything about; one that can be of no interest to any one but ourselves. Possibly so, for there are very few of us that thoroughly know and understand ourselves. Some one has said, "Let a man tell me what he admires most in another person, and I will tell

him what he has the least of; let him tell me what he dislikes most in another person, and I will tell him what he has the most of." We see others make a blunder. We laugh and say, "I could do better myself." "Well, try it then." "Oh, I don't want to. I don't want to be held responsible for the thing if it goes amiss." And so they will stand back and grumble and complain. The price of butter and wheat is too low. Politics are all wrong, from beginning to end. The wrong man is in the wrong office; and, in fact, the whole universe is turned around and traveling the wrong path. Very well, whose is the fault? The one who takes an active part and so sadly mismanages things, or the ones who growl and complain because things are turned loose? The ones who wait until others have got control of things, and, as is too often the case, manage matters more for their own good than the public interest, are the ones who are most to blame, and why? Because, when they see others erring, and it is in their power to better them, or perhaps set them right, they stand off and shirk their share of the responsibility; afraid to cast their vote or raise their voice, for fear they might possibly be in the wrong. 'Tis weak and foolish, and I don't know that we would be far wrong in saying 'tis selfish as well.

Many of the best and smartest men we have had a poor beginning in life, and more than one have made blunders. "'Tis better to try and fail, than not to try at all." And did you ever notice that sometimes the most green and awkward appearing of people, those whom we were accustomed to laugh at, and whom we thought were not gifted with more than their share of natural smartness at least, are sometimes the ones who come out the best in the end. They seem to profit and learn a lesson from the jokes played on them, and in the end they may have a chance to laugh at their tormentors. We are all familiar with the old saying, "He laughs best who laughs last." By our worst mistakes we learn our most beneficial and practical lessons. By our failures we learn our weakest points, and in the next attempt we should be better fortified against them. We may think a certain thing very easy to do, and blame others for failing, until we ourselves make the attempt, and then we find how hard it is to accomplish

what seems so easy a task. We see what others have to bear and suffer, and think we never could endure as they do, but sometime the bitter cup will be passed to us, and we find we *must* bear it. Our greatest errors make us more kind and charitable to others. We can then pity where before we censured. The world is wide, its ways and pursuits are many and varied. There are many paths to be traveled; some that lead to pleasant places where God's angel seems to watch over and lend a protecting presence, and keep from all evil. There are others that are almost choked up with the haunts of vice and wickedness, yet all have one starting point and one ending — the cradle and the grave. No matter how far apart we travel after leaving the starting point, we must all stop at the same place at last. No distinction shall be shown there. We shall be judged, not according to our riches and standing, but according to our lives and deeds. The veil of deception that so faithfully screens us now, will then be torn in shreds, and the secret chambers of our heart will then be surely opened, and all its contents revealed.

Then should we not try to make our lives worth living for? It is not all of life to live nor all of death to die. Why was the gift of life given us if not to make a good and noble use of? If we cannot accomplish anything at one vocation, we surely can at some other. The world seems crowded, to be sure, but if we look around us we can find a place left open for us somewhere. We will take it, and do something beside merely droning along any way to get along with the least trouble. We must not be as the peri who sought admittance at heaven's gate. "What good deeds have you done?" asked God's angel. "None," said the peri. "Has your life been all evil, then?" "Alas!" said the peri, "I have just lived; I have done neither good nor evil." "Your place is not here," said the angel. "Go back to earth, and remain until by your good deeds you have gained a place in heaven, or by your bad deeds have forever forfeited it."

And yet many of our best acts are done more for the praise we expect to receive for it, than for the real good in the act. It may be half unconsciously that we do it, but look into your motive and reason, and see if you were not actuated as much — yes,

more — from a sense of selfishness and pride than from a sense of love and duty.

English history says the love of military glory impelled King Richard I. to act from the beginning of his reign as if the purpose of his government had been the relief of the Holy Land and the recovery of Jerusalem from the Saracens; and to obtain means to accomplish his purpose, he yielded up for ten thousand marks the vassalage of Scotland, and even declared he would sell London itself could he find a purchaser. But he paid dearly for his glory and renown, for he was afterwards sold to the Emperor VI. of Austria, loaded with chains, and confined in a dungeon.

We should all work for some object, no matter how lowly, if it be honest. Heaven pity the one who has nothing to work for. He may have natural talents and abilities, that if rightly exercised would make the world better for his having lived in it, but without an aim and purpose in life, they never develop. The world may seem cold and pitiless to some, but nevertheless the best men there are, are those who have fought their own battles and worked their own way. The world honors such a person much more than the one to whom "fair fortune" has been most kind. The one who has worked his own way alone and without help, has more to feel proud of and feels himself more a man than the one who stands just as high, perhaps, but whose way has been paved by better men than he can ever hope to be. We see many who have almost reached their journey's end. They can see where we err and where we go astray. We can learn a lesson from them if we choose, but no — experience must be our teacher. For as the old man said, when lecturing his son on his general depravity, "Young man, I have seen the folly of all these things." "Yes, father, and I want to see the folly of them too." In our life we should remember that our first duty is to ourselves, but we should not forget that our purpose is all the sooner accomplished by doing unto others as we would be done by. Then we benefit others while we do not lack in duty and honor to ourselves. So much for the poetical part of ourselves; but there is a social and romantic side to our nature, that is not considered of any use to us, but which I think, if it is not credited with taking

an active part in our welfare, at least lends zest and energy to the business and practical part of ourselves.

We may work and earn ever so high a place among men, but of what avail is it all if we have to share it alone; and our greatest disappointments are not half so bitter if some one we love is near to speak a cheering word and encourage us to make another attempt. Even Miles Standish, stern old warrior though he was, had a social and romantic side to his nature, and probably was never more perplexed in his life than when studying how he might win Priscilla the Puritan maiden. What makes the poet if not imagination, ideality and a great deal of romance? The greatest writer the world ever saw, Shakespeare, loved Anna Hathaway, and Robert Burns, however unconstant he may have been to the one he afterwards married, was ever true to his first love; and though she died years before, he always loved and cherished the memory of his "Highland Mary;" and to quote good authority, did you ever see a person that sometime in their life did not experience a feeling of love and romance? It may have been when a child at school, or later in life, and the person may have been sore perplexed and called it an attack of the gout. We often hear it said that a person may make his life just as he wishes, good or bad. To a certain extent that may be true. We may do as we like about living honestly and making the most of opportunities that chance to come in our way, but aside from that there is a fate — a destiny which governs our life and which we are powerless to control.

Prof. W. W. Daniells, of the State University, was next introduced, and after a few preliminary remarks, gave the following account of the

EXPERIMENTS WITH FERTILIZERS ON THE UNIVERSITY FARM.

The following experiment was begun to test the value of different fertilizers upon the soil of the University Farm. The land upon which the experiment is being tried was first brought into

cultivation in 1876, consequently no fertilizer has ever been put upon it, except as stated in the conditions below given. Seventeen adjacent plats, each containing one-tenth of an acre, are to be cultivated for a series of years, in accordance with these conditions. Adjoining plats are separated by a space of three feet, in order that one plat shall not be affected by the fertilizer placed upon another. All plats were planted to corn in 1877, 1878 and 1879. In 1877 no fertilizer was used upon any of the plats, that the relative production of each might be obtained. Four unfertilized plats have been left as a basis of comparison. The following is the method of treatment:

Plat 1. Two loads of well-rotted stable manure.
2. Nitrate of soda equal to 32 lbs. nitrogen per acre.
3. Peruvian guano, equal to 35 lbs. ammonia, 54 lbs. phosphoric acid, and 7.3 lbs. potash per acre.
4. Nothing.
5. Hard wood ashes, equal to 160 lbs. potash (KOH) per acre.
6. Potassium chloride, equal to 160 lbs. potash per acre.
7. Nothing.
8. Superphosphate of lime, equal to 18 lbs phosphoric acid per acre.
9. One load well-rotted stable manure.
10. Sulphate of ammonia, equal to 32 lbs. nitrogen per acre.
11. Nothing.
12. Wood ashes, as in No. 5.
13. Twenty-five lbs. gypsum.
14. One load well-rotted stable manure, with one-half the quantity of guano used in No. 3.
15. Nothing.
16. Sodium nitrate, equal to 20 lbs. nitrogen per acre, hard wood ashes equal to 45 lbs. potash per acre, superphosphate of lime equal to 15 lbs. available phosphoric acid per acre.
17. Stable manure, as in plat 1.

The following table contains the results of this experiment to the present time:

PLAT.	POUNDS, YIELD IN —					
	1877.		1878.		1879.	
	Ears.	Stalks.	Ears.	Stalks.	Ears.	Stalks.
1	332	200	776	574	584	382
2	352	326	714	460	434	268
3	380	365	774	386	500	329
4	420	392	690	414	504	359
5	420	406	672	430	530	354
6	442	415	686	490	464	352
7	437	475	648	396	500	292
8	422	416	684	398	488	354
9	414	401	748	408	584	400
10	454	394	790	530	540	340
11	460	416	694	416	548	332
12	456	424	742	436	630	382
13	460	419	674	426	562	354
14	470	420	776	518	612	379
15	480	443	642	428	560	314
16	464	374	686	478	540	342
17	436	370	726	516	570	344

In reply to several interrogatories, the professor stated that he considered these experiments simply fairly begun. He neither could nor would express an opinion now, as these experiments had to extend through a series of years.

On motion, the convention adjourned until 7 o'clock P. M.

EVENING SESSION.

Music, by G. Y. Freeman, Esq., and assistants.

EDUCATION FOR THE FARMER.

BY J. W. McLAURY, PRESIDENT OF GALESVILLE UNIVERSITY.

The general government has given to the various states for educational purposes, at different times, nearly 100,000,000 acres of land, and about $50,000,000 in cash.

The annual expenditures for education throughout the country at the present time are nearly $90,000,000, and the cost is rapidly advancing to $100,000,000 a year. Notwithstanding this vast outlay, more than 2,000,000 of children, between the ages of four and sixteen years, are not in the schools. This great throng is growing up in dark ignorance.

The expenditures for school purposes in the state of Wisconsin amount to about $2,150,000 yearly; yet, of the 480,000 children of school age in this state, only about 295,000 are in the schools, leaving 185,000 persons of that age not in school. Taking away the number between 16 and 20 years, and giving them the credit of having a good common school education, there still remains a vast army of 60,000 children in the state of Wisconsin who are entirely without proper instruction and care, doomed to a life of ignorance, and destined to entail on the state untold evils and crimes.

These stern facts and figures may well claim the serious attention of every citizen. When it is considered, as suggested by Gen. Eaton, Supt. of the National Bureau of Education, that of those whose names are enrolled in the schools, some remain only a few weeks, some only for a day, the alarming fact stands forth that, with all these vast expenditures, notwithstanding that grand reality, the public school, supplemented by numerous private schools, great armies of children are growing up without any education, except that obtained in squalid homes, in haunts of idleness, of vice, and in dens of iniquity; besides an unknown number who can barely read, but whose education is limited to the simplest rudiments.

When it is remembered that pauperism and crime are proportioned to illiteracy; that the illiterate voters exceed, by many times, political majorities, and that they can control the government of the republic; and when we consider that the evils of labor strikes, the horrors of mobs and bloody communes are only possible through ignorance, the evils of illiteracy threatening the peace and prosperity of our nation can be contemplated only with the deepest anxiety.

But the farmers of our land may say: "The illiterate and

criminal classes afflict cities; we are more or less remote from their baneful influences."

While this thought may afford some comfort, the farmer cannot find much consolation in the reflection that the advantages of his children for education are inferior to the privileges enjoyed by those living in cities. The farmer boy is likely to rank below his village and city cousins in point of education and intelligence.

This ugly fact is emphasized with the reflection that, in the near future, social standing will demand education, intelligence, refinement. Parents will soon learn the lesson that riches alone will not purchase access to the best society. Other credentials will be necessary. The aristocracy of the future will be that of intellect. As the landed proprietors in England are the highly respectable people, so the owners of farms in this country possess a corner stone to respectability and honor, — the next essential is education.

The following are some of the advantages possessed by city boys and girls over their country cousins:

1. The cities pay better salaries and get better teachers. In Wisconsin, male teachers in cities receive an average salary of $105 per month; females, $36. In the country, males get $38; females $25. The qualifications and experience of teachers are probably proportioned to the salaries.

2. In the country, changes are more frequent. Teachers succeed teachers with remarkable rapidity; many of them are young, without experience; often but little in advance of their older pupils in education; and usually by the time they acquire some knowledge of and skill in teaching, they must needs make room for another teacher of little or no experience.

3. The country district teacher has all grades to teach, without assistance, from the smallest pupils up to the largest and most advanced. But a few minutes can be devoted to a recitation in a great majority of these schools throughout the nation.

4. But few trained teachers or normal graduates are found in country schools.

The wonder is, not that children learn so little, but that they accomplish so much. In the cities the teachers are often well

trained, professional; they are usually retained in the same schools a series of years. There are teachers for each grade, apparatus, libraries, fine buildings, the stimulus of admiring friends and visitors, courses of study, examinations, promotions, and the final honors of diplomas. All these encouragements are unknown to the farmer boy and girl, who go to school a portion of the year, and the other portion labor at home.

The grand system of public schools, of which we so loudly boast, means our graded schools.

Of the common district school we are not particularly boastful. We point with pride to the magnificent school buildings ornamenting all our cities, but who holds up to view the little school houses at the cross roads, or on unfrequented highways? Distinguished strangers are invited to view the inner workings of our city educational palaces, but who ushers them into the illy ventilated wayside school house, or introduces them to the bashful scholars and timid, trembling teachers?

Chief among the many considerations demanding attention to-day, are the interests of the country schools, and the importance of elevating them to the highest possible efficiency.

The following are some of the essentials:

1. Thoroughly qualified, successful professional teachers should be employed and continued in the same school from year to year. The custom of employing transient teachers for a few months should be abandoned. Young persons should use some other step-ladder than district schools, over which, as teachers, to walk into other callings. The custom of employing cheap transient teachers is too costly; it robs the nation of money and of brains.

2. Commodious, properly seated, warmed and ventilated school houses should be erected, and furnished with all suitable appliances for the most advanced educational requirements.

3. Libraries should be established, accessible and free to every farmer, mechanic and laborer, to every boy and girl in the nation.

4. Every school should have at least two departments, and be furnished with two teachers.

A common error obtains that a child ought not to be sent to school till it is six or seven years of age. With the present cur-

riculum of study, and methods of instruction and discipline, it is possible that children below that age were better out than in the schools. But a system of instruction has been devised, adapted to very young children, the physical and intellectual development of which is so important, that parents and the state will fail in the full discharge of grave responsibilities by withholding from the coming generations the advantages this system affords.

Heretofore we may be excusable for lack of knowledge of methods and means, but Froebel and other great educators have made important discoveries and inventions. They have opened the portals and showed us the way to the child's educational paradise. Hitherto this ignorance God has winked at, but He now commandeth all men everywhere to repent. A modified form of Froebel's system can undoubtedly be adopted in our district schools. There is abundance of room; genuine gardens are at hand; flowers, grasses, grains, fruits, animals and birds abound; clay, pebbles, wood of various kinds are within reach, and the thousand and one objects of nature and art on all sides, render this system of Froebel's entirely practicable in a community of farmers.

Two obstacles oppose a change so important and so costly as the one here suggested:

1. The majority of the people do not see the necessity of the change.

2. They are unwilling to incur the expense. It will cost money.

People generally believe that making money is of more importance than the education of their children. Men often withhold education from their children because they have to pay off the mortgage on their farm, or they desire to add another farm to their broad acres.

A man who is in debt, especially if he has a mortgaged farm, and at the same time children to educate, has two obligations, both imperative; if he cannot discharge both, he should not hesitate which of the two to choose. The education of children is of more importance than laying up money, buying more land, or getting out of debt. Of course a man has no right to defraud his

creditors, but a mortgaged farm at death, with children properly educated, is better than broad acres unincumbered, bequeathed to illiterate children. It is a mistake for a man to say, "When I get out of debt I will educate my children;" the chances are his children never will be educated. It is a mistake to suppose that making money is the highest aim in life. The man who makes brain power, who adds to the intellectual forces of the nation, is of more value to the world than the mere accumulator of dollars, for he develops wealth producers; money alone is not wealth.

It is not the purpose of this paper to descend to details, but permit a suggestion or two concerning the character of the instruction proper for common schools. Practical utility is largely urged as the motive of education, and there is an urgent cry for technical schools. It is a mistake to suppose that the principal aim of the common schools should be to prepare boys for particular kinds of business or professions.

It is not essential for the teacher to know whether the child is to be a farmer, a merchant or a banker, but it is essential that the intellectual powers of that child be properly developed, strengthened and disciplined; that the physical growth be properly cared for. It is essential that obedience to authority, respect for the rights and property of others, the obligations and duties of the child to its Creator, to its parents, to its associates, to the community, to the state, to the nation, be inculcated and enforced. Obedience, truthfulness, honesty, should take precedence over arithmetic, grammar, geography, and should be so emphasized in the schools that they will ultimately be the prominent, realized exponents of the nation's character. Intellectual and moral culture forming the basis of the system, studies of a practical nature are appropriate. In addition to those already taught in the schools, the history of the state and nation; our form of government; how laws are made; how executed; the different courts, state and national; how officers are elected; the duties of citizens; their relations to both the state and national government; what constitutes good citizens; it seems to me these should be prominent in common school instruction.

Two dangers threaten the life of the republic: First, ambi-

tious, unscrupulous leaders; second, ignorant voters, who can be led like cattle to the polls.

An increasing desire is manifest among thoughtful men, to fill many important offices by appointment rather than by the vote of the people. The reason is want of confidence in the mass of the people; fear of the vast crowds of illiterate voters.

In taking the elections from the people, we tread on dangerous ground; we transfer immense power to a few men. If these few should prove unscrupulous, our rights as citizens are hazarded. On the one hand, through a powerful few, there are visions of an oligarchy; on the other, through the ignorant rabble, there are glimmerings of anarchy; on either, the death of the republic is foreshadowed.

With educated, intelligent voters there is little danger. I have never lost faith in the wisdom of the voice of an intelligent, free people. The peace, the prosperity, the life of the republic is largely involved in this educational problem. Illiteracy being a great curse, education becomes a great blessing. The interests of common schools, therefore, are proper subjects of consideration in an assemblage of farmers. How to render them most efficient is as important to the state as money-making, as fertilizing, as rotation of crops, as blooded stock, or as the cultivation of fruits or flowers.

What possession so valuable as the possession of a child? What flower so beautiful? What earthly product so precious as that being fresh from the hand of Deity? that intellect which is to exist eternally? that image bearing the impress of divinity?

Do not understand me to be wanting in appreciation of the importance of making money, or acquiring property. I have high appreciation for the honest acquirer of wealth. I admire the energy of that man who can accumulate his thousands and millions. I admire the manager of fine farms, of blooded stock, and the successful cultivator of delicious fruits; but when I enter a school room filled with young children, and behold a woman developing symmetrically all the faculties of that little flock, elevating them to noble manhood, — that woman I reverence more than the representative of any other calling.

Few prospects on this round earth are more attractive than finely cultivated farms; the pleasant homes amidst groves and flowers; the large barns; the meadows, the orchards, the pastures variegated with flocks and herds; and when here and there over the fair landscape, we can behold the attractive school house, likewise surrounded by groves, by flowers, by walks and extensive playgrounds, and when to this delightful prospect is added the consciousness that the inmates receive the attention, the care, the instruction necessary to prepare them for their highest possibilities, we can but exclaim, "Behold earth's fairest paradise."

There is something thrilling in contemplating the not distant future of our country. Its teeming populations of a hundred millions of human beings; developing immense resources; wielding a power whose vast potencies are beyond present computation. When I contemplate the activities, the passions, the aspirations, the swaying masses of great multitudes; the question forces itself: "Whence the mental, the moral, the physical forces sufficient to govern these great hosts?" The answer comes back in emphatic tones: "In the wisdom, the judgment, the moderation of the vast multitudes of the people themselves." This power is possible only through the efficiency of the schools of the nation.

The discussion that followed this highly interesting address was animated and participated in by several of the best speakers present.

The convention then adjourned until the next morning.

WEDNESDAY, JANUARY 8.

Music—"The Farmer and the Season," by Eugene Clark and assistants.

"THE DUTIES OF THE UNIVERSITY TO THE FARMERS OF THE STATE."—Address by Prof. Daniells.

The Professor started by giving a definition of the term University. He then stated the organization of the different departments of our State University, more particularly the Agricultural Department. The University was and always had been ready, yea anxious, to teach agriculture, but the students did not care for

instruction in that branch. At one time, in order to get students for this department, it was made compulsory. In order to graduate, the student had to devote a part of one term to this branch. This had been abandoned. Was now giving all his time to chemistry. Was teacher of chemistry, but professor of agriculture. Was the University to be blamed? It could no more compel the students to study agriculture than law.

Advantages of that Department.— An experimental farm was operated by the university, and many valuable results were annually published in their yearly reports. The hull-less oats swindle had been exposed, and had the farmers but taken heed, thousands of dollars might have been saved. For the last eight years they had conducted experiments with raising spring and winter wheat. Although the winter wheat entirely failed one year, still the average was 32.4 bushels per acre, while spring wheat averaged only about 19 bushels. The average difference in weight was nearly in the same proportion. The value of this experiment was worth more than the whole expense of the department. Other experiments were also briefly mentioned by the speaker.

"Farm Implements," a paper by Martin Rhodes, of Trempealeau, Wisconsin. He gave a general view of the several improvements and advancements in the several industries, particularly agriculture. Described the methods of the ancients, and then contrasted the agricultural standing of the different leading nations of the present day. Discussed the patent laws; the different kinds of farm machinery, and thought there was truth in the saying, "The best is the cheapest."

LABOR.

(Read before the Northwestern District Convention of Farmers, at Galesville, Wis., January 7, 1880.)

BY S. S. LUCE, EDITOR "INDEPENDENT."

In making out a bill of fare,
Our farmer friends are well aware
Some dishes of unsavory kind
A place among the others find;
And thus I bring my offering here
In contrast to your better cheer,
With much of trembling for its fate
Among these critics of our state.

By Eve's advice, in days of old,
  Man ate forbidden fruit, 'tis said,
And ever after, we are told,
  Was forced to work to earn his bread;
A sad mistake, as all agree —
  To frustrate thus what God designed —
And brought eternal misery
  Forever after to mankind.

This was the price that Adam paid
  For knowledge; and it left a debt
That no one ever can evade —
  Which has not half been cancelled yet.

It seems if this primeval pair
  Had lived in ignorance and bliss,
We had inherited *our* share
  From that day even unto this —
Of that same ignorance and joy,
  Of that same fruit without the toil —
Sweet, dreamless nights without alloy,
  And days devoid of care for spoil.

'Twere worse than vain to here repeat
The trite old tale of Adam's curse,
So fraught with misery complete,
Recorded in Miltonic verse,
With stately measure, grand, sublime,
That scorns the fetters of a rhyme.

Enough to know that Adam's fate
Was sealed; and 'neath th' Almighty scorn
Was turned without the elysian gate,
And misery and toil were born.

'Twas thus that farming first began,
And downward to the present day,
The common heritage of man
Has ever onward held its way.

First herds that cropped the herbage crude,
With tents to shelter from the storm,
Young earth a boundless solitude —
A wilderness, in primal form.

The burning sun to rule by day;
The moon and stars to shine by night,
To guide two pilgrims on their way
From mental darkness into light.
It would be tedious to trace
The course of agricultural skill;
Centuries on centuries crept apace,
And it had gained small progress still.

In later years, when Virgil wrote
His pastorals in Latin verse,
If his bucolics I should quote,
'Twould give you colics that are worse.
To think of milking sheep and goats
Instead of cows of modern breed;
Or chasing those long snouted shoats,
Would be a sorry task indeed.

Leaving behind those poets sage
Who sang of agriculture rude,
I pass to the medieval age,
When methods were about as crude.

A proud and haughty, warlike race,
That in those stirring feudal days
Lived oft by conquest or the chase,
And in most rude, outlandish ways,
When might was right. The arts of peace
Declined and languished; in their place
The bloody arts of war increased
And feuds and rapine marched apace.
Men fought for spoil, men fought for creeds,
And oft for vengeance in their rage;
The record of their cruel deeds
Mars many a leaf of history's page.

When later came our fathers o'er
For freedom's sake — freedom of thought,
And landed on New England's shore,
It was a freedom dearly bought.
They battled with the sterile soil —
Against the treacherous savage band —
They labored on with patient toil
With perils thick on every hand.

As ore is purged of filthy dross
When in the fiery furnace tried,
So human souls of passions gross,
Are by sore trials purified.

Thus the "New World" in days of old,
When sown with Puritanic seed,
Bore wills of iron, hearts of gold,
Yet bound by superstitious creed.

And to those Puritans severe
This nation owes a lasting debt;

Their memory we should revere,
  Their sterling virtues ne'er forget.

They sowed the germ, and by their toil,
  Subdued the rank and noxious weeds
That sprung spontaneous from the soil;
  Theirs were not sounding words, but deeds.

And now a nation strong and free,
  We reap a generous recompense;
Our free lands reach from sea to sea,
  And span a mighty continent.

These are the fruits of patient toil,
  These the rewards of virtuous lives;
And he who cultivates the soil
  By honest labor always thrives.

Could those stern, lion-hearted men,
  Awake to life in this, our day,
And view the progress there has been
  Within the present century,

O, who could fathom their surprise?
  The march of the industrial arts
Might well confound those sages wise,
  And give us grateful, thankful hearts.

How would they view the clattering car
  That sweeps our prairies of their spoil,
And gathers in from near and far
  The golden products of the soil?

Or him, who through his fields of maize,
  Beneath his canopy of state,
Defies the sultry summer days
  From early morn till evening late?

We call these days of progress rare —
  The age of lightning and of steam;

No other era can compare
With this, the present, it would seem.
But are we happier in our day
Than were our ancestors of yore?
And does our own prosperity
Excel our fathers, gone before?

The old, old story of the "fall,"
An act that thwarted God's intention,
Seems hardly probable at all,
But very much like man's invention—
Some one who had a wholesome fear
To earn his bread by honest labor—
Would like to live from year to year
Upon the products of his neighbor.

"Irreverent!" I think you said.
"'Tis sin to doubt one jot or tittle."
Am I to blame to snap a thread
That seems so very, very brittle?

The laws of God and nature here,
Are laws of labor, laws of action;
The earth revolves from year to year,
Nor deviates a single fraction.

And worlds on worlds that swing in space
Are moving in their orbits ever,
Each in its well appointed place,
Goes on, and on, and ceases never.

The fountain from the mountain's side,
Sings on rejoicing in its motion;
The river, with majestic tide,
Rolls on to join the mighty ocean.

The ocean with its ceaseless waves,
Oft 'gainst its rugged shores is dashing.

Or gently, lovingly it laves,
Or roars among the breakers splashing.

Action is life — inaction death,
Is written clear throughout creation;
The very air that fans our breath
Is purified by agitation.

Shall man, the choicest of God's hand,
Of all his works the richest treasure,
In his own image nobly planned,
Live but a life of idle pleasure?

No, rather let mankind rejoice
That they have faults and frailties human;
The freedom and the gift of choice,
And hopes and sympathies in common.

Then let us labor for our weal,
To idleness there is no trusting —
The brightest and most polished steel,
When not in use, is prone to rusting.

Shrink not the duties of to-day,
Nor stop to care and sorrows borrow;
The sun that lights our present way,
May be obscured in clouds to-morrow.

Then view not labor as a curse,
But a rich blessing kindly given;
The order of the universe —
The grand economy of heaven.

The president next introduced Hon. Hiram Smith, as a representative of the University Regents.

The speaker referred to the vast importance of agriculture, a just conception of which should inspire us with lofty emotions. But the duties were corresponding to the importance, hence the necessity of thorough and liberal culture.

The state has wisely provided us with a university having an able corps of instructors in all branches of learning. There the sons and daughters of men in all conditions of life could meet on common ground, for coming improvement.

In closing the speaker referred to the vast plains yet to become cultivated, and the necessity of having those large tracts of land settled and cultivated according to fundamental principles promotive of general good.

The convention adjourned until 1:30 P. M., and the immense gathering left the hall to witness the drill of the University Cadets on Court House Square, under command of Lieutenant Clem of the United States army, Professor of Military Science in the Galesville University. Every available space on the streets surrounding the square was occupied. While the cadets in full uniform, with rifles, etc., went through some excellent performances, the Galesville cornet band, stationed on the balcony of the Commercial Hotel, filled the air with strains of exhilarating music.

AFTERNOON SESSION.

Music.

Next came a very valuable and highly interesting address by Hon. Stephen Favill, of Delavan, Wisconsin, President of Northwestern Dairymen's Association, on "Dairying in Wisconsin."

After a few witty, off-hand remarks, the speaker proceeded: I was peremptorily commanded by the Dairymen's Association to come here, and hence I am here and shall try to do as well as I can. But should I fail, I want it distinctly understood that the failure shall be laid where it belongs, i. e., on the Dairymen's Association. [Applause and laughter.] In dairying the conditions must be favorable, and the speaker mentioned several places exceedingly well adapted for that purpose. It used to be said that we could not compete with the East, but large shares of premiums at eastern fairs went to our state.

The speaker spoke at length on the advantage of our state over the eastern states, and upon the advantages of this industry over grain raising. Thought the farmer who raised nothing but wheat sold his farm by the bushel. The speaker next gave some

valuable advice as to successful dairying. A cow should be treated as gently as a lady. Try it, you who have been in the habit of kicking and pounding your domestic animals, and you will observe a change as great as a change of such treatment upon your wife. [Applause.] The beauty of dairying is its regularity. It was morning and evening 365 days a year. If a man is not at home earning something he will be off somewhere spending time and money. When a dairyman went to town he knew he had not time to whittle dry goods boxes, or tell long stories. [Applause.] The habits of many farmers were such that they ultmately went "over the hill to the poor house." [Continued applause].

The convention then adjourned until 7 o'clock P. M.

EVENING SESSION.

Music — "Memory's Refrain."

A paper was then read by Charles N. Herreid, secretary of the convention. Subject:

INTELLIGENCE vs. IGNORANCE.

Light and darkness, day and night, summer and winter, heat and cold,— everything in nature has its opposite. As the rays of sunshine for unnumbered ages has burst forth to light up the material universe, so intelligence has battled with ignorance ever since the youthful days of the human race, and successfully continued to dispel the intellectual darkness that has surrounded the mind of man. We open history and examine the records of the past generations of man. We behold the different races, at different times and under different circumstances, as they pass in review before our mental vision. We see man in a state of ignorance, degraded, wretched, and suffering. We see succeeding generations surpass their predecessors in proportion to the superiority of their intellectual development. We compare the different generations, and marvel at the contrast. Through the lapse of centuries, man has advanced from a state of barbarism to the refinements of modern civilization, and still the stupendous work of advancement is going on!

Hence we infer: Intelligence brings happiness, wealth and refinement; ignorance is the positive cause of misery, wretchedness and crime. The correctness of these propositions is obvious, and can easily be shown from reasoning, from history, and from experience. Simply a comparison of the savage that roams through the forest with the enlightened inhabitant of a civilized country, would be a brief but impressive representation of the blessings resulting from intelligence.

The evils of ignorance are not few in number nor small in magnitude. The whole history of the word justifies the statement that an ignorant and uncultivated mind is prone to sensuality and cruelty. In what countries, may I ask, are the people most given to the lowest forms of animal gratification, and most regardless of human life and happiness? Is it not in pagan lands, where moral and mental darkness broods, and where degraded humanity is vile and cruel, without shame and remorse? Then as we pass to civilized countries we find the different nations virtuous, prosperous and progressing, wretchedness and crime diminished, and the arts of peace cultivated in direct proportion to the general intelligence of the people.

It is with feelings of genuine pleasure that we behold the mighty and mysterious changes that have taken place as the centuries have rolled on. In a grand survey of the changed and changing conditions of man, perhaps none is more remarkable than the relatively recent improvements of those arts by which human life is sustained, and human existence is comforted, elevated and embellished. It is a remarkable fact that astronomy, sculpture, poetry and oratory had made great progress hundreds of years before the era of the "useful" arts. In fact, the era of discovery and invention has just begun. Who were the Edisons of former generations? Why should the discovery and application of scientific principles be the latest achievements of the human mind? The answer is plain. The universal spread of intelligence has transformed the thoughtless masses into intelligent observers of nature. An enlightened mind cannot pass, either blindly or with the dull and stupid gaze of brute creation, by the great objects and wonderful processes of nature without ob-

serving the several existences and relations, and their adaptation to the uses of mankind.

These observations resulted in great innovations upon the primitive methods of the different industries. In agriculture, the advancement has been from the rude wooden instrument to the steam plow, from the hand sickle to the self-binder, from the flail to the steam-thresher.

In the arts of transportation and locomotion, from employing domestic animals as beasts of burden, to the steam engine, and the railroad car, having a velocity of a mile in 60 seconds.

In navigation, from the bark canoe to a Great Eastern that proudly traverses the stormy oceans.

In the art of copying and printing, from the slow process which required a lifetime for the transcription of a single book, to Hoe's power press of to-day, producing 15,000 sheets, folded and ready for delivery, in an hour.

In the art of telegraphing, from communicating information by signs seen from one station to another, to conveying intelligence with the velocity of lightning.

These are only a few of the numberless contributions to human welfare that have been derived from intelligence — the intelligence which directs the employment of those natural agencies which have existed, though in a dormant state, ever since the origin of the human race. But what is wind and water and steam for mechanical purposes, until man constructs the proper wheels and the piston rod, and place them between these agents of nature and the work to be performed? Our age differs from the past only in having addressed great nature in her mother tongue, the language of science and art. For thousands of years the Creator had to wait for an interpreter of His works.

That "knowledge is power," has become a proverb. The truth of this is evident everywhere, and in all conditions of life, and not least in those avocations requiring manual labor. The labor of a man is worth more than the same amount of physical force exerted by a brute, simply because it is directed by intelligence. Hence, an intelligent person is able to earn more than his less favored co-laborer. The uninstructed may work by the side of

the intelligent, but the mental difference will place them in different relations and conditions. They may employ the same implements, exert the same physical force, still while the one only has an arm, and the other an arm and a *mind*, their work will be stamped with the marks of inferiority and superiority.

But intelligence when contrasted with ignorance, presents other views of far greater importance. Intelligence is not only a power of removing physical evils, but the source of those exquisite pleasures, man's highest and enduring joys. A being immersed in total ignorance is destitute of those nobler feelings of human nature. He simply grows, lives, and dies. His views are confined to the objects around him. Of the aspects of the globe, its oceans and continents, the animated beings of the air, the land, and the seas, the revolutions of empires and states,— these are things to him unknown. Of the boundless regions beyond, in the firmament, and the bodies that roll there in magnificent grandeur, he has vague ideas. Whether the stars and planets are large or small, move or stand still, are matters of no importance to him. He spurns the revelations of science. That the sun is more than five hundred times as large as all the planets taken together ; that the planet on which we live is rushing through space with a velocity of one thousand miles per minute ; these facts are regarded as by far less probable than the wonderful exploits of Baron Munchausen.

Not so with the enlightened mind. He can trace back the stream of time, and gliding down to the present day, survey the events of the past and the progress of civilization. In his rural walks he observes nature, its beauties and harmonies — enduring monuments of an intelligent Creator. He can trace the huge earth, flying through unlimited space with its beings, almost infinite in number and variety. On the wing of imagination he can transport himself to distant worlds, and there contemplate the unnumbered millions of starry systems that grandly move through the boundless space of the universe. Mysterious mortal, whose comprehensive mind can scan creation, whose heaven-aspiring spirit can soar beyond the boundaries of time, contemplate eternity, and behold at once the past, the present and the future.

Probably the most valuable paper read at this convention was Prof. Daniells' last paper, on "Feeding, Watering and Sheltering Stock."

Hon. W. W. Field, from Madison, was then introduced as a representative of the State Agricultural Society. He spoke briefly on several topics, particularly the importance of such gatherings. Complimented the ladies for their interest in this meeting.

After the convention had been briefly addressed by several gentlemen present, Hon. Hiram Smith was introduced to deliver the final oration. This, indeed, was the climax of wit and eloquence.

Introductory scene: Mr. Smith, with becoming dignity, takes the platform and commences:

"*Mr. President, Ladies and Gentlemen:* — The more I learn" — "the less you know." These latter words were uttered by his friend Steven Faville, who sat close by him. After the uproarious laughter had subsided, the speaker continued: "the more I see the importance of someone else learning something also." This was delivered with a graceful bow towards Mr. Faville. The laughter this time was at Mr. Faville's expense.

"The more I learn the less I feel disposed to talk to others on this subject. The sages of all ages have written on this subject; perhaps there is not a more prolific subject in the whole range of literature. If we look back over the different conditions of agriculture, it may be a source of encouragement to press onward." The speaker eloquently described the mighty progress of civilization. Coming down to more recent days, he contrasted "that honest age when there were from nine to twelve children in a family, where a youth had to pass through the terrible ordeal of measles and marriage. Those were the good old honest days." (Laughter.) The speaker thought the ladies should pay more attention to self-improvement, and less to fashion. "If they cannot get a new dress as often as they would like to, they can easily change an old dress so that no *man* can tell the difference." (Applause.) Amid storms of laughter the speaker recited the comic poem about the lady "That shook out her trail, as long as a rail," etc.

The peroration was simply magnificent, and held the audience spell-bound.

Complimentary resolutions were adopted thanking the committees of music, arrangements, president and secretaries. The convention adjourned at 10:30 by singing "Old Hundred."

The second of the series of agricultural conventions, instituted by the Regents of the State University, was held at Auroraville, Waushara county, January 20, 1880, and was opened by Lieut. J. Mathews, who said that the local agricultural society and the citizens of Auroraville are glad in their hearts to welcome people to this meeting; while here, our homes are your homes, our tables are your tables. He believed farming to be as Washington had said, "the noblest work of man."

Response by W. W. Daniells, of the State University, who stated that the interest which is taken in these agricultural meetings generally results in much good. He regretted that President Smith was not here. Thanks for the welcome. Thought that the proffered kindness would be accepted; we will be at your homes and tables, and not go away hungry. Hoped we should all go home brightened up and able to think more. The motive power of these agricultural meetings, as some of you may know, is the agricultural department of the State University. In order to help this along, last year $5,000 was voted to pay expenses of men to help at agricultural meetings; but in order to conform to the law, the account has to be charged through the State University to advertising, so hoped the University would be well advertised.

The first address was by Gen. Geo. E. Bryant, of Madison, secretary of the State Agricultural Society, who spoke as follows:

Wheat is the most valuable of all the cereal grasses. It is not known in a wild state; has long been cultivated by man, forming the principal breadstuff of all civilized nations from a time antedating the historical era. Chinese and Egyptian history and records testify to the antiquity of its cultivation. Botanists are inclined to the opinion that it had its home in central Asia.

Wheat is king of all the cereals, because it is the parent of greatness in the human family, the head spring of brain food. The nations whose principal food is derived from it, surpass the nations who feed upon other and coarser material, in intelligence, the arts, science, and in all that elevates mankind. Wheat is cash. No matter how full be the granaries of the world, it has always a fixed value at the commercial centers. There is no day in the year that it is not susceptible of sale. There is more gambling in wheat than there is with money. It is said, by those who say they know, that "poker" is a far more honest game than that made popular and respectable by our boards of trade and sustained by the decisions of our courts, the game of "puts" and "calls" in "wheat margins."

The principal exporting wheat countries of the world are the United States, Chili, Russia, Denmark and Turkey. While the United States is a great exporter, she is not the greatest raiser of wheat, either in bulk or per acre. The United States has never reached five hundred million bushels per year, while France, who exports none, has raised six hundred million bushels in a single year. The average per acre in the United States does not exceed twelve bushels, while in England it exceeds thirty-three bushels; in Wisconsin it hardly reaches fifteen bushels per acre. Old John Brown, "whose soul is marching on," as he was being conveyed along the valley of the Shenandoah, said, "how beautiful are the wheat fields;" and as a thing of beauty, a full blown wheat field, with its many flowered spikelets, is a joy to the eye of old and young and cannot be surpassed.

One of the finest inventions of our time is the improvement of the "Pestle and the Mortar" for making this golden grain into tasteful food for man. But a few years have passed since it was the custom to separate the wheat by milling into three parts, flour, shorts or middlings, and bran. Now there are many mills both in this country and Europe that make ten grades of flour from the same quality of wheat. The finest wheat flouring mills in the world are in Hungary, at the head of which is the Itzvan Mills at Debriezin, under the charge of its engineer, Prof. Pekar, who has shown great ingenuity and ranks as the first miller of

the world. The sweepstake or chamber of commerce premium at the last state fair was awarded in both winter and spring wheat to a citizen of Milwaukee county, after a sharp contest, samples of which I show you. Look at it, but don't touch it. Submit it to a microscope and I know you will say it is just splendid. There are many varieties of wheat — so many that the ordinary farmer would be puzzled to distinguish one from another. Half a century ago an agricultural society in Scotland had one hundred and fifty varieties on exhibition.

Botanists divide wheat into two classes — bearded and beardless — but bearded wheat has been known, by fine cultivation, to lose its beards, and beardless wheat sown in poor soil becomes bearded. The price of wheat is fixed at its market place in the east, and yet it has traveled west, and is still traveling with a steady march. Forty-five or fifty years ago all the flour of New England came from the Genesee Valley of New York, and I well remember the first barreled flour that came to Boston from southeastern Michigan, shipped via Lake Erie and Governor Clinton's great ditch. Since the suppression of the rebellion, the Milwaukee Club, of Wisconsin, stood at the head of the quotation list; now its real home has passed west of the Mississippi river, into Minnesota, and ere long it will rank in Dakota. To-day, in our state, south of the Wisconsin river, wheat cannot be called a leading crop. While wheat has been the great civilizer of the northwestern states, its continued production has done much to impoverish the soil, for where, twenty-five years ago, thirty bushels per acre was a usual yield, the same lands to-day yield less than ten.

In this country, the yield per acre steadily decreases, while in Europe it increases; the better cultivation in the old world having this effect. Shall we ever again reach sixty fold, and when? I answer, when we raise no more than is required for our own consumption; when we cultivate our lands as faithfully and well as the people of France and England do theirs. What the lands of Wisconsin want is better cultivation, more fertilization. How shall we get it? By pursuing mixed husbandry; by selling more on the hoof and in the fleece, and less in the half bushel; by

raising grass and making hay. As the botanist divides wheat into two classes, bearded and beardless, so we in Wisconsin are dividing it into two classes, winter and spring, and the former is fast taking the place of the latter.

The experiments of Prof. Daniells has proven that for the term of years the experiment has been going on the winter averages far more than the spring. The Pennsylvania Dutch farmer, that par excellence in making things grow out of the earth that turns into lucre in his pocket-book, sows his winter wheat September 1st, after plowing his ground twice and dropping in some fine stable manure just to give the plant a start; drills it in north and south and lets it grow; if it gets too rank in the fall he feeds it with sheep and colts, and rarely misses a crop. Try his way, and I don't think you will miss it unless you get some seed from Gen. Le Duc or some other seed peddler at $10.00 per bushel. Use any of the kinds recommended from the experimental farm and you will make no mistake. From one bushel of seed sown September 17, 1878, on three-fourths of an acre, oak openings, clay soil, somewhat injured by the hail storm of July 5th, 1879, served as the Dutchman serves his, I reaped thirty-one and one-half bushels of sixty pound wheat. A like piece of spring wheat yielded seven and three-fourths bushels of fifty-two pound wheat.

There have been a great many interesting experiments made with wheat, both in this country and Europe. Prof. Daniells will tell you of very curious and different results shown by his experiments on the University farm.

Did you ever try salt on wheat land? A neighbor of mine, a very successful grower of winter wheat, sowed it on all of his wheat and timothy crops with apparently great benefit. He sowed at the rate of a bushel and a half to the acre. I cut the following from the *American Agriculturist* of current month, which shows that other people's misfortunes are the cause of our good prices in wheat: "The people of England are examining with great interest the facilities of northwestern United States for raising the first of all the cereals, and they are trying to make themselves believe that in Manitoba and Canada they have sufficient of wheat lands to compete with the United States." But the

great peninsula of Canada, like the state of New York, has passed the period of raising wheat to sell, and Manitoba's business will be done by our people.

The wheat supply of the United States on the general interest of England had become so important to her farming interests that it has forced such marked men as Lord Beaconsfield and Gladstone into open discussion of the problem. They both admit that the British farmer has got to confront the problem with American competition in farm products, and has got to face the consequences, whatever they may be. The British government may be beyond the reach of the American idea of government, but she can not live without our bread and meat. The British farmer can never again compete with the American in the production of wheat for the Liverpool market; his land is too high, and the cost of working it too much. He will have to change his farming by putting his labor and money into other branches, or emigrate.

It is true, that just across the channel the Frenchman lives, and the agricultural income of France increases at the rate of three per cent. per year, while England gains but half of one per cent. But the British farmer will never consent to live as does the French peasant; the latter rarely eats meat, subsisting mostly on soup, sour wine and black bread, common to the continent; he goes without the home luxuries and comforts that the Englishman will have. The French acres are not called upon to support its people in so generous a manner as are the British acres. The Briton is bred, and has been for centuries, to have luxuries and comforts. There is only one satisfactory answer to this British wheat question, and that is a large emigration of the British farming population to her colonies and the United States.

Gen. Bryant closed by saying: I have said my say upon this subject of wheat, not because the subject suited me or me the subject, but I was directed by Mr. Regent Hiram Smith, to whom, with Prof. Daniells, we are indebted for this series of agricultural meetings, to say something about wheat, and like a good soldier, I have obeyed. I believe if he had assigned to me the subject of corn, I could have been more interesting, at least to myself, for corn is liquid as well as solid, but this being a good wheat country, I

hope such of you who *reap* it, will be permitted to say annually:

> Here stretched in ranks, the swelled swaths are found,
> Sheaves heaped on sheaves here thicken up the ground.
> With sweeping stroke the mowers strew the lands,
> The gatherers follow and collect in bands;
> The rustic monarch of the field descries,
> With silent glee, the shocks around him rise.

Theo. S. Chipman, of Warren, spoke on the subject of Education for the Farmer. Believed that farmers, like other people, should receive a special education and training for their business, to be successful. Wanted broad culture, extensive knowledge, but added to it, theoretical and practical education in farming.

Prof. Daniells said: Education is but another name for intelligence; should he say all he thought, he should differ somewhat from the preceding speaker. The end and aim of every farmer should be to put forth his best efforts. It is better that he should know why he does things; why he harrows; why he cultivates.

Mr. J. M. Smith said that of all the sciences that are practiced, there is no profession that is so little understood as that of farming. There are so many things that we don't know, that it seems to be a necessity to know more. Believed in special education, but a farmer should know of many general things. He ought to know about prices, freights, and the world's harvest. He could know as well as the manipulator should know, why a certain kind of soil is best for raising wheat.

Mr. Favill thought the best education to give the farmer, is to give him the best of any man living. Give the best education you can in your circumstances.

General Bryant said that Prof. Daniells was either the father or stepfather of these agricultural societies, and the University the rich old uncle who supplies the funds.

Prof Daniells replied that Prof. Morrow was the father of these agricultural societies.

Mr. Stephen Favill, of Delavan, Wisconsin, spoke of the unselfish work that had been done by Prof. Morrow; sorry that we had lost so good and noble a man from the state. Thought that

Wisconsin, under his management, had the best agricultural paper in the west.

Mr. J. M. Smith, of Green Bay, thought when commenting upon Gen. Bryant's paper, that wheat had been driven from the seaboard to the west by exhausting the lands of their wheat producing qualities. No need of letting land run out of these qualities, though a different thing to restore worn-out wheat lands. His father, a "book farmer," a name in an early day nearly as bad as an abolitionist, kept his land up with clover. Salt would act very well, but is not a manure; lime is good upon some soils; plaster good upon some soils and upon some crops. When you sell a bushel of wheat you sell a part of your farm.

Mr. E. W. Daniels, of Auroraville, said salt had been tried in one or two cases in his vicinity with good results.

Prof. Daniells thought farmers are wasteful of time, especially at this season of the year, which should be expended in acquiring knowledge. Thought he should acquire habits of study.

E. Williams believed in seeking the best market.

Mr. Torrey, of Oshkosh, said that education is a subject that has been agitated in all the agricultural conventions. Everyone admits that education is necessary for one to become a successful farmer. Of a German army it is related, that out of several thousand who fired only two hit the mark, because they did not aim right. Related a story which he did not claim as his own. Ole Bull, the great violinist, was once at Donnybrook Fair, Ireland, where he saw an Irishman playing a fiddle. He inquired of him if he played "by ear"? "No." "By note?" "No." "How then?" "By main strength."

Gen. Bryant was always glad to say something for the benefit of farmers' boys, for no living thing has been worse treated except it be a "skim milk" calf. It used to be in New England that the smartest boy was picked out for a lawyer, and the next for a doctor, and the next for a minister, and the rest had to stay at home and work; they who stayed at home should have been sent to school the most if they were not as smart as the others. Give the boys an education (even if they are to become farmers) in Greek and Latin, and anything else to increase their knowledge, and they will be the better for it.

On grain raising, Prof. Daniells said by this he would call it wheat raising. Some years ago large yields of wheat were obtained in this state. Why not now? Because the state has been put to wheat so long. There are certain minute qualities which are necessary to produce wheat — nitrogen, potash and phosphoric acid. As these exist in the soil only in limited quantities, a course of crops diminishes them, though the soil be good when the cropping commenced. In England, experiments for thirty years, without fertilizers, have failed; with fertilizers, have kept up. To continue the same crop takes continually the same ingredients from the soil. The supply, by freezing and thawing, and fertilization, may be kept up. Exhibited on a chart the following statement of the composition of soil concentrated into beef and milk, etc. One cow in one year will give about 4,000 lbs. of milk, which contains, nitrogen, 29 5-10 lbs.; phosphoric acid, 7 7-10 lbs.; potash, 8.5 lbs. One acre of land will produce 15 bushels of wheat and 2,781 lbs. of straw. The wheat contains, nitrogen, 18 63-100 lbs.; phosphoric acid, 6 34-100 lbs.; potash, 10 69-100 lbs. The straw contains, nitrogen, 13 2-10 lbs.; phos. acid, 5 6-10 lbs.; potash, 7 6-10 lbs. Making a total of nitrogen, 31 8-10 lbs.; phos. acid, 11 9-10 lbs.; potash, 18 3-10 lbs.

These are the minute fertile ingredients of the soil. In stock farming you are always putting back something, but grain raising doesn't put back anything unless resort is had to commercial fertilizers. On the University farm they put twelve loads of manure on an acre each year. Originally, in 1869, this was a poor farm, but the yield has continually increased, and gets cropped over and over with grain. But farmers cannot afford to manure all their acres so largely. By rotation — grain, grass, and occasional manuring — you can increase the fertility of your farms.

Question — Would butter carry away so large a quantity of these ingredients?

Answer — No. Cheese would, nearly as much.

Farmers generally do not understand the value of manure and manner of saving it. Stock should be well littered with straw, as every part is valuable. Ashes are very valuable, on account of the potash.

Question — How much should be put on?

Answer — It depends somewhat on the kind of soils.

Question — What effect on sandy soil?

Answer — Good; as sandy soil contains but little potash.

Question — How shall we use plaster?

Answer — That must be determined by trial. Not much is known of its way of working.

Question — How reclaim tree land?

Answer — Thought that trees return ingredients to the soil, instead of exhausting. Leaf mold is one of the most valuable common fertilizers.

Mr. Geo. Hawley wanted to know about getting out manure — whether to leave it in heaps in the fall, or spread it.

Mr. Bryant believed it was better to spread the manure in the fall for corn, and plow the ground if you have time.

Mr. Walther thought it better to leave it in the yard, and haul it out in the spring before planting, and plow it under.

Mr. Favill thought, on account of work, it was best to draw it in the winter, and spread it.

Mr. Mathews said that the manure of his farm was his bank.

Mr. Favill, President of the Wisconsin Dairymen's Association, said that the meeting of the Regents of State University prevented Mr. J. M. Smith from attending this convention. He had been in Wisconsin thirty-five years; for thirty-four years had been a dairyman; has had a dairy of forty cows; in fact, was born a dairyman; started the first cheese factory in Jefferson county, Wisconsin. Thought it not necessary to speak at length of its growth; believed that now there are over 200 cheese factories in the state, when fourteen years ago there were only a dozen; most of this growth has been within the past six years.

The score who commenced first are now getting along nicely. Honest industry always goes slow. Are we in danger of overdoing this business? Men have predicted this. I believe there is no danger. Prices in 1878 and 1879 were low. Almost every manufacturing interest was dead; consequently a large number of men who live from hand to mouth were thrown out of employ-

ment. In Liverpool our best bacon was sold in 1878 for four cents per pound.

The dairy business has been just as good as any other. There is a good time coming! Is there any reason to believe that history will not repeat itself? There is no danger of producing more than is wanted. New markets are opening. Cheese has been sent this season to Spain, the West Indies and South America, heretofore supplied by Germans.

If England won't take our dairy products we shall seek other markets. Our factories have given our own people good cheese as well as other peoples. But a few years ago little cheese was sold about home, but as factories increase home consumption increases. Factories should sell their best cheese at home. If we eat cheese let us have the best. Make summer or soft cheese to be sold at home. Keep up the home market and the foreign will take care of itself. This vicinity is one of the best localities in the northwest for dairying purposes — rich soil, beautiful running water. Grain raising is one of the poorest things that a farmer can do. I advise all to get rich, and if you stick to dairying in this beautiful valley you can not help it, if you are reasonably prudent and honest.

D. L. Davenport had not been in the dairy business long. Have read some and talked a good deal. All dairymen seem to be in favor of the breed they have to sell. Had not raised anything but native stock himself. A farm should be continually improved, even with native stock.

Ayrshires have been bred a great many years for milk, and I would select from them, though there are other breeds that perhaps may be as good.

I attended the meeting of the Dairymen's Association. All agreed that the milk had been bred out of the Short-horns. I think we should breed for cows that would milk thirty-two pounds per day; from that to forty pounds. Sell every cow that does not come up to thirty pounds per day. Stimulating food should be given to cows before coming in.

I made forty pounds per day from some cows before grass came. When they come on to grass they give more milk.

Question — What was the feed, and how much?

Answer — Mixed half and half in bulk, corn meal and bran; part of the time one-half oats instead of corn.

Mr. J. M. Smith keeps only three or four cows, and wants the best. Has one Jersey grade that at two years old made 371 lbs. of butter. At times was fed on parsnips, a bushel per day. Got a pound of butter for a bushel of parsnips, while feeding the parsnips. Go to any part of the country where they have followed wheat growing, and they are growing poor where it has been followed for twenty-five years. Go where dairying is the avocation and you find them growing rich; but none have made money fast.

Farming does not produce such men as Wm. B. Astor. Do not desire to get rich; try to be well-off. I commenced at the very bottom; hadn't a dollar to make the first payment on my land. Had only his head when he went to work on a farm, a sound body and strong hands. Kept an account with his farm in order to know whether it was paying or not. Accounts ought to be kept. If business men were as shiftless as farmers in keeping accounts they would be bankrupt. You can't be as strong as a horse; you can hire a man to do your work, but you can't hire anyone to do your thinking.

Mr. Mathews wanted the best; thought it a poor plan to keep scrub stock. Wrote for a pair of Holsteins; but was advised to get Ayrshires, because the Holsteins had not been tried.

Prof. Daniells believed that a full blooded male should be used; referred to races in England of continued fast running. No case on record where a seven-eighths horse has been able to compete with the thoroughbred; thought it a mistake to breed from grades.

The Cooley System of Butter Making, by Mr. Cotanch, who said the cans held seventeen quarts; in shape, eight inches broad, twenty inches deep; the cream should be from four to six inches thick; keep the water below 50°; keep it cool with ice if you have not running water; cream rises in twelve hours; churn as soon as cream commences to get acid; don't wash cans only once a week. Use dog power to churn a one foot wheel.

Mr. Favill spoke from observation and not experience. The

box is a refrigerator, box wood and zinc; inside the covers the temperature shall be near freezing; at 35 degrees, the cream will be brought in three hours. Wouldn't use an old-fashioned churn; the rectangular is the best. Stop churning when you get little pellets; put in some cold water and salt, and drain it off. Cover your butter with some white cloth, white ash or oak packages; the packages soaked with brine are best.

The convention adjourned after passing the following resolutions:

Resolved, That the convention tender to the Welsh choir and to the choirs from Poysippi and Auroraville, their hearty thanks for their very excellent music which has added so much to the interest and enjoyment of the occasion.

Resolved, That we would extend our thanks to the Board of Regents of the University of Wisconsin, for the aid they have given us in paying the expenses of men from abroad, to aid in the exercises of the convention.

Resolved, That we would express our indebtedness to the trustees of the First Congregational Church, of Auroraville, for their liberality in giving this convention the free use of this church.

Resolved, That the thanks of this convention are due the president and secretaries of this convention for their efficient services in making the convention a success.

Resolved, That the secretaries of this convention be directed to forward a summary of its proceedings to Geo. E. Bryant, secretary of the State Agricultural Society, for publication in the coming volume of said society.

The fourth of the series of agricultural conventions was held at Baraboo, February 24th, in connection with the Sauk County Agricultural Society, and was presided over by Hon. J. M. True, president of said society.

Mr. Solman Braum, of Dellano, read the following paper upon

THE RAISING OF PORK, AND HOW TO MAKE IT PAY.

Mr. President: — The raising of swine for market in the past two years has been on the whole rather unprofitable business, owing to the extremely low prices which have prevailed during those years; consequently it behooves us to think and inquire

how we can, as farmers, raise and fatten hogs for market at the least cost per hundred pounds. Having had some experience in the business, I will endeavor to present my views on the subject. I have always believed it best to raise the most improved breeds, believing that high-bred animals are the most profitable, but think there is a great deal of truth in the old adage that the breed is in the mouth; in other words, there is more gain in good care and management than in the breed.

I do not think it proper to recommend any particular breed, as all improved breeds have their friends. I have always had the best success with March or April pigs. Early pigs are best for two reasons: 1st, if designed for fattening the first year, they will have acquired a reasonable growth before winter, and can be turned off before very cold weather. 2d. Early pigs stand the winter far better and make faster growth during the cold weather, if wintered over, and are larger in the spring in proportion to their age, than shoats two or three months younger, and when turned into clover pasture have larger frame and eat more, making a greater growth through to the end. I think it a good plan to sort out, give away, kill and destroy the scrubby looking pigs while running with the mother, as I have noticed that the scrubs continue to be scrubs in most cases to the end. It is always best to get the pigs to eating well before weaning, and feed well until they are ten or twelve weeks old, on ground feed and milk well soured in a barrel before feeding. Well-kept pigs at that age will have acquired sufficient size to run in a pasture, being large enough so they will not get through a good fence and into mischief. Clover pasture is as good for young pigs, with a reasonable amount of swill, as twice or three times the amount of feed, when fed to them while shut up on a floor or in a small yard. The pigs should be kept in the pasture until the grass has done growing in the fall, and without having been crowded at all should weigh over one hundred pounds each. Then if the price of pork seems to justify, the farmer may shut up as many as convenient in a warm pen and fatten for market, as they will then be in splendid condition for fattening and will grow and take on flesh very rapidly.

Care should be taken not to overfeed, feeding only as much as will be taken up readily, keeping the appetite sharp, for if allowed to become cloyed, will not do well afterwards. Pens for feeding should be open toward the south. Have tried feeding hogs with pen open toward the south, and also, at the same time, had hogs shut up for fatting in a pen open to the north, and without sunshine. Those having the sunshine and light thrived splendidly, while those in the pen with the northern front scarcely made any progress at all, with the same feed and care. Some might think this idea to be a blue grass theory, but the practice is not. I think that thinking and observing farmers will bear me out in this assertion. The pigs taken in the fall and fattened, should weigh, when nine months old, two hundred and fifty pounds live weight, without having been crowded on expensive feed but a short time, comparatively. I have not found it profitable as a rule to fatten and sell pigs the first year, preferring to winter and sell them early the next fall. In wintering shoats, I find that they do best to have plenty of room to run about, a large yard with a field adjoining being very good. Care should be taken that they have a sheltered place, with plenty of reasonably clean straw for bedding. I think it pays best to feed them sufficiently well in winter to keep them growing well. I have found that hogs will eat clover hay in winter with as good relish as cattle or sheep, and will pick up the hay cleaner than cattle. This winter I have made a practice of feeding clover to the shoats every day at noon, and think it profitable, saving thereby one-third of the corn which would otherwise have to be used.

I see no reason why clover when cut a little green for hay, and saved bright, should not be as nutritious, and do as much good, as when eaten in the pasture, it making a very good change once a day from corn, and being cheap feed. I have an acre of Jerusalem artichokes which I intend for spring feed. Shall commence feeding as soon as the ground thaws in the spring, and feed until June, the proper way being to let the hogs in to do their own digging. I intend next fall to store a large quantity in a cellar to be fed once a day during the winter. I believe artichokes to be the cheapest feed for hogs that can be grown, as the

yield per acre is simply enormous, reaching sometimes as high as twelve hundred bushels per acre. Artichokes make a change of feed in the spring, which seems to be just what is needed, the disposition of swine being to dig and obtain roots from the ground, particularly at that time of the year.

As soon as the clover gets a good start in the spring, towards the latter part of May or the first of June, the hogs should be turned into clover pasture, allowing five or six hogs to an acre of clover, giving them nothing else but water during the season of clovering. The hogs at the time of turning into clover should, if April pigs of the previous year, weigh two hundred and twenty-five pounds each, and be smooth enough to sell at any time, if need be, a condition which they will maintain as long as the clover remains good. It is a well established fact that hogs of this size will gain one hundred pounds or more each while in the clover, or a net gain of about five hundred pounds of pork for an acre of grass, which makes a handsome profit for the use of the land. It is a good plan to sow a patch of peas joining the pasture, which can be mown and thrown over to the hogs, or the hogs can be turned into the patch to do their own harvesting. I think the latter plan best, as they will get all the peas and leave the straw on the land where grown. An acre of peas is calculated to furnish as much or more feed than an acre of corn, and will ripen earlier, thus enabling the farmer to commence feeding earlier in the fall than on new corn.

The hogs at this time should weigh on an average three hundred and forty or fifty pounds, and if pork is low and no prospect of being higher, will be more profitable to sell than to keep any longer, but if corn is plenty and cheap, can be increased in weight by shutting up and feeding corn faster than at any other time in their existence, being in just the right condition and age for fatting. The advantage of this system of feeding being two full seasons' growth on clover and other cheap feed, with only one wintering, and that only partially on corn. By this system the farmer need not provide an acre of corn for each hog he raises, as is necessary by the old rule and style of letting them run in the highway. The direct profits from the sale of the hogs

I consider only a part of the gain, the advantage being in the increased crop grown on the land where the hogs have been pastured and fed. The land is then in condition for any crop. I have made it a practice to break up the pasture for corn, followed by small grain, and seeded to clover again with first crop of small grain, making a rotation of crops, which cannot fail to win. In fact, I think if this practice is well followed for a term of years, it will make the land rich, the hogs fat, the mortgage less, and I see no reason why the farmer may not grow fat himself.

Mr. Crawford endorses Mr. Brown's paper, every word.

Mr. Grisim's experience does not agree with Mr. Brown's in regard to the use of clover. His pigs did not do well in clover. Clover is worthless, or nearly so, for food, either green or dry.

Mr. I. W. Morley likes clover for pigs. They will grow better when fed corn in the fall. Clover hay is the best food for sheep. Timothy not good sheep hay. If hogs were kept on clover we should hear less about cholera and worms.

Wm. Toole could not afford to raise hogs without clover. With it, he has made pork raising profitable, even under low prices. Cuts clover when in full blossom, if he can.

Mr. Barnes rather agrees with Mr. Grisim. Cannot raise hogs on clover profitably. Don't believe that it pays to winter pigs. He crowds early pigs, and sells in the fall at an average of three hundred pounds.

Mr. Brown would turn into clover before it was in blossom.

Mr. Morley asks if artichokes will live in this climate?

Mr. Smith cannot kill them.

Mr. Morley — Will hogs dig them and kill them?

Mr. Brown thinks one plowing in June will kill them.

Mr. Toole, of Excelsior, read a paper on "Observations." Wishes farmers were more observing. All farm operations should be careful experiments. Has been looking for wheat which will not lodge. Odessa lodges the worst of any. Golden Chaff seems the best. There seems to be a general desire for immediate returns rather than for permanent increase of fertility. Sows one

hundred pounds of plaster to the acre two springs in succession for pasture. With the help of clover and plaster, his hogs in 1879 paid better than any part of his grain crop. Must make use of clover and plaster to supplement the barnyard manure. The question of applying science to farming is being forced upon us by the necessity of competing with newer western lands.

President True thinks plaster is good in some soils, and calls for the opinion of gentlemen.

Mr. Wood believes in plaster on his farm. Soil, heavy timber land, inclined to a predominance of clay. Has always seen decided benefit from the use of plaster. Would always use plaster with clover. Has had wheat and oats lodge from the use of it, and it has made him a little cautious in its use. It is a fact that on some soils it has no effect.

Mr. Lawton, on a clay soil, believes thoroughly in plaster; uses it on corn as well.

Mr. Smith thinks that where plaster will work there is no better way to renovate soil than by the use of plaster and clover. As a general rule, plaster works well on timber land. It used to help his soil, but of late can get no good results. His land has been very heavily manured.

Recess until 1 : 30 P. M.

GENERAL MANAGEMENT OF THE FLOCK.

BY I. W. MORLEY, OF EXCELSIOR.

Having prior to this presented a paper annually for the last three years to this society on subjects intimately connected with sheep husbandry, I had thought that I had worn this subject threadbare, to that extent at least that anything that I might add would be looked upon as rather stale, if not nauseating. But as our worthy president saddled my hobby again and asked me to mount, I decided, insomuch as it will require no one to hold my familiar steed while I vault into the stirrups, to try the rein, at the risk of driving into some of the same moonlight views, as we were wont to. But in doing so, I say that this is a field or theme

upon which there has been so much said, and which has been so ably and thoroughly presented by the writers of all our agricultural papers, by the greatest lights in the land, that it does seem to be a violation of the great law of propriety for me, Uzzah-like, to raise my hand to steady this ark of truth as it is borne onward.

If I could even hope to succeed in implanting a fixed resolution to bring our practice in the management of the flock up to the best theories, these lines would be penned with cheer and satisfaction.

We start out in the discussion of this subject with the evident fact before us, and staring us in the face, that care, feeding and breeding have made all the difference we now see between a really choice flock and a miserably poor one. Think of it. And now if these three levers which interwork so harmoniously have produced such results, I believe that each one of that company of farmers now before me can see, although it has been tauntingly said of farmers that they are good for nothing except to make money out of — I say I believe we can see the importance of having these levers intelligently manned and diligently plied.

Having been taught by our agricultural papers that we should provide shelter for our sheep in the winter, most of us have done so, and we keep them where they can avail themselves of its benefits, too, at that season of the year; but have we, during the cold, wet storms of the fall of the year, been so sensitively affected by the condition of things that we have always acted on the theory that now is the time of all others in the year when our pets need their shelter?

Let us apply a little common sense here. We all know that a rapid and brisk bath in warm weather is good for a person, in opening the pores of the skin and in removing the waste particles of the system from its surface. But suppose we change the condition and have on a fair supply of clothing, and suppose that that clothing has not been changed night or day all through the dusty summer, then let a drenching cold rain beat upon us till the streaks of wet filth run down our persons; and with these unfavorable conditions, suppose the weather to remain cold and bleak for three or four days, as it frequently does in the fall

of the year, so that a person needs, even if dry, an overcoat on more than in cold weather in winter — would this be conforming to hygienic laws? Would not such a health-bleaching process rather tend to bring on rheumatism, tooth-ache, catarrh and consumption to a human subject? Then let us reflect and use a little good judgment in its application, and though we may be deaf to the cry of humanity, or of mercy to our brutes, allow me to lift a warning voice by saying, that unless we care for the comfort and the health of our flock, that great sympathetic nerve that runs down through the pocket-book will soon get affected. On the ground of self-interest then, give the flock the benefit of good, dry quarters during the fall rains, and should it rain all day, or for two days, keep them there. It will stop some time. Give them a feed of hay as often as they need it. They will be all the better to receive dry feed again when winter sets in, especially the lambs.

A flock treated in this way during these storms will keep comparatively free of those catarrhal troubles that affect so many flocks. And as the wool secreting glands are located in the skin or hide, and as copious secretions can be carried on only when in a healthy condition, it follows that, if we expect to clip very heavy annual coupons from our investment, all possible conditions for a healthy hide should be supplied. The cuticle, on opening the wool, instead of looking pale and dead should present a freshness and a glow like the blush of a maiden's cheek.

The fall season of the year, too, is the time that sheep need grain perhaps more than any other. The fact that they fill themselves on frost-bitten grass so that they look round and plump, as they always will, is deceptive, and may lead one to think that they must be laying on fat and doing well enough, whereas that very plumpness is an indication that they need something more hardy, as they thus gorge themselves to get nutriment enough to supply the demands of the system. It needs some judgment to decide just when the grain supply should commence.

We have thermometers to tell us the temperature of the atmosphere and surrounding objects, and barometers to indicate the

approach of a storm by the weight of the atmosphere; but no instrument has yet been invented to tell us just when our sheep need the fall grain storm to commence. But an index that will answer the purpose, if we will closely observe it, may be found in the farmer's milk pail. Soon after a heavy frost, if we find, as indicated by said milk pail, that the grass fed cow needs to have her milk-secreting glands nourished to keep up the usual flow of milk, "know ye that the time draweth nigh and is even now at your door." And this additional nourishment should not be ignored. I wish to emphasize this, for a failure here may prove a Waterloo to the success of the flock and their already wasting energies; may, like the rallying spirit of Napoleon, be banished to St. Helena.

Let every flock owner, then, give them during this critical period of the year the benefit of a close observing, whole-souled, liberal-handed shepherd, to see that they are brought into winter quarters on the bound. Then, after becoming a little accustomed to their new feed, the grain supply may be lowered, or suspended altogether, as may seem best.

Another very important item in the general management that needs to be attended to in the fall of the year, is the selection of an animal to stand at the head of the flock, if not already secured; and if one is breeding a flock that he expects will be able to write their own history on the records of Sheep Husbandry, he needs the exercise of some judgment. An animal that has been far fetched and dearly bought is not always the desirable one.

Science and the general history and success of stock breeding unite in teaching us that we may predetermine quality, and with skill may reach high attainments. Here there are no assigned limits. Jacob, of ancient time, understood some of these scientific principles and profited by them, too, to the disadvantage of his father-in-law Laban.

It is sometimes the case with one who has not been long in the business, that he does not know just what he does want. It is not the object of this paper to point such to any particular breed. But there are some general principles that might assist in the selection. In the first place you do not want one that has a femi-

nine appearance, such as a small, slim neck, a fine ewe nose and nasal organs, a small leg, etc., no matter what his other qualities may be, for he has neither the stamina nor the longevity that should be bred into a flock. But you do want one of full medium size for the breed, and one that has written on every part of him his masculine nature, and one, too, that if once called on and thoroughly aroused, would not wince in undertaking to butt a steam-engine from the track; not necessarily cross, I do not mean, but one that seems to realize that he is master of the ground he stands on, and whose form would indicate that he had the ability to hold the fort without putting on any false airs; then if he has the other qualities to mark his merit in the particular breed to which he belongs to a high degree — when you find one with such an individuality, coupled with an untarnished pedigree, you will find a treasure worth possessing. And if you become the happy owner of such a prize, take care of him. One-half of the good qualities of your future flock are here. Do not turn him loose with your flock and allow him to waste his energies uselessly.

Let us now return to the flock. The well-bred sheep, if properly handled during the year, will at shearing time surrender a large, massive fleece with a strong elastic fiber, which, when made into cloth, will far outlast anything that ever was or probably ever will be manufactured from wool grown from sheep that have been neglected and left only to grub the frost-bitten grass during the fall. Wool that is grown from excessively poor sheep is but little better to wear than shoddy. The manufacturer, then, is not the only sinner in the wide world. I think there are sheep that shear the shoddy, whether we have those cows that, according to the authority of queenly aristocracy, give the buttermilk, or not.

In the spring we require our ewes to surrender ten or fifteen pounds of their clothing, and our bucks from twenty to thirty pounds. There will consequently be quite a change in their ability to withstand the varying conditions of cold or heat. If sheared too early they may suffer from cold. If not sheared till late they may suffer both before and after shearing; before shear-

ing, by having such an amount of clothing, causing them to pant and sweat, to their great discomfort; and after shearing, in the great change caused by having such an amount of clothing all at once removed, and allowing the hot rays of the summer sun to strike the bare skin. The sheep that is shorn the latter part of May or first of June will, if examined five or six days subsequently, be found to have a blistered back, a condition which is very injurious to the wool glands, and if repeated times enough, these glands would probably cease to secrete entirely, like the hair glands on the shoulder of a horse that has been blistered till hair no longer grows. This blistering, through the influence of the sun's rays, cannot be very enjoyable to our pets, if we may judge from our own experience when the bony fingers of poverty have tattered our shirt sleeves, or laid open a slit in the back near the shoulder on a hot summer's day. Under such circumstances we have been so afflicted in a few hours that we could scarcely raise our hand to our head.

The practice of our best flock owners seems to be tending toward early shearing, and thus give time for the shearing to start a little before the scorching heat comes on.

If I were to follow an ideal, I would shear in March or by the first of April, and put on one or two blankets, and then as the warm weather came on, remove one after another, as a person removes his overcoat, then his coat, as the weather becomes warm, and finally his vest.

But as this is impracticable we may approximate to the ideal by shearing, say the first of May, when there would be but little danger of blistering, and then protect them from cold by stabling nights and during the storms for eight or ten days, after which the changes of temperature would not injure them.

I have one flock of sheep, the ancestors of which I purchased of Mr. Bunnell, of Kirtland, Ohio, a little over thirty-three years ago. Much of the time since the purchase they have had very good care. Another portion, that is during their early frontier life, they had to rough it like most other stock. Notwithstanding the fact that they have had to try the leeward side of the haystack for shelter and the marsh hay for forage, they still clip

just about twice the number of pounds per head, if my memory serves me correctly, as the purchased progenitors; and I think, under favorable circumstances, their fleece might have been doubled in half the time.

And now, from my small experience, which has been spread out over a large amount of territory, I am satisfied that the quality of not only the present flock, but of their increase three or four years hence, will depend very much on their keep between now and then. For instance, the well bred sheep that is now rearing her choice lambs, and shearing say ten pounds of wool, if left to take the fall rains, with no other food than the frost-bitten grass, till the snow covers it from her reach, and in spring with fleece on to swelter in the heat till about the first of June, and then with hide all soft and soaked by reason of perspiration, as if to make it tender and soft to give greater effect to the scorching, blistering rays of the sun, on removing the fleece will, after three or four years of such neglect, not only shear very much less herself, perhaps not more than four or five pounds, but her lambs after this will be found to be very much inferior to those produced while she was shearing her ten pounds. And this is in harmony with the law of heredity, that individuality as well as blood is pumped into the veins of offspring. But do you ask, has not the sheep the same individuality when she sheared only four or five pounds, as when she sheared the ten? I answer, no. It is an acquired individuality, as we say of a person after losing his health and constitution, he is not the man he used to be.

Now let us change the conditions of this hypothesis, and instead of treating this sheep as described, we give her very extra care for three or four years, and thus raise the weight of her fleece from ten pounds to fourteen or fifteen pounds. Then will her stock, if we still keep up the secretions of the wool glands, be decidedly in advance of what it was before the experiment commenced.

Though the mile stones in this upward grade may not be as far apart as on the downward, still they may be set and thus mark the progress. But see here, this is only half of an experiment.

In order to complete the other half, we must take the male and give him a similar treatment.

First, then, develop the secretions of the wool glands or other desirable quality by care and feeding, then fix it in progeny by breeding. This is the grand interpreting thought which pervades the broken story of the success and the failure of different flocks, when translated into a coherency. All our best flocks have now a certain degree of fixedness of characteristics, but even this can not stand against a radical and entire change in the food and surroundings which produces it. Here then is the grand key that unlocks the portals of improvement. Through the genial influences that have surrounded our flocks, and at our control, the quality of our best have been advancing ever since they landed upon our shores. The Spanish importations of ewes have increased in carcass from forty or fifty pounds to seventy-five and one hundred, and in fleece from four or five pounds to twelve or fourteen pounds, and some to over twenty, and the improvement in some other breeds, perhaps, has been equally as rapid.

And now in the light of that success that gleams out over the history of the past, prospectively this highway of progress and improvement stretches far out into the distant future.

In conclusion, then, let us in a climate where no disease has ever visited us to deplete our flocks, but where everything seems to conspire to develop the grandeur of the coming sheep, let us not only as flock owners, but as component parts of the renowned Badger State, taking for our motto, "good care, liberal feeding and skillful breeding," place our flocks upon the giddy heights of excellence.

Let us never indulge in the vain illusion, that because Wisconsin has won her laurels on cheese and butter, having become the nation's victor on the former and the world's on the latter, that therefore, in the flush of our success, we may fold our hands in her already acquired glory, while there are crowns still within our reach yet to be plucked.

Mr. Smith — Are not our American Merinos better than the same kind of sheep in Spain?

Mr. Morley — They are. My flock of yearling ewes have averaged over ten pounds of wool for two or three years past.

Mr. Smith — If success is to attend us, we must keep up the principle of improvement not only in sheep growing, but in stock raising and all branches of farming.

THE FARMER'S LIFE.

BY J. C. CRAWFORD, OF BARABOO.

If one were to judge from what the poets say of agriculture, he would conclude, I think, that the farmer's life is one of ease and comfort, and that the farmer has merely to look upon his growing crops and thrifty herds and enjoy life; but the reality is far different, and I think you will all agree with me that the life of the successful farmer is a laborious one, if not the most so of all occupations. The man who succeeds in farming is obliged not only to exercise his mind, but to put in more hours at manual labor all the year round than a man in any other business; for work with him begins at four to five o'clock in the morning, and during a large part of the year does not end until seven or eight o'clock at night.

Does the farmer receive an appropriate reward for his labor? I think his compensation is much less than that of the merchant or manufacturer who is equally industrious.

Agriculture is admitted by all to be the very foundation upon which the prosperity of the whole country stands. We have colleges devoted exclusively to the interests of agriculture, and a department of agriculture in our State University. Many of the most able men of the country devote their talents and time to this pursuit. It is therefore no less worthy than any other occupation or profession. The fact that there are many farmers who are poor and in debt, does not prove that they are poorly paid; but the fact that, by the most careful economy and shrewdest management, a man at ordinary farming is able to become only comfortably well off when old enough to retire from active life, proves conclusively, I think, that the farmer is poorly paid in

comparison to men in other pursuits. When farmers become well enough off so that they can afford to hold their crops a year or two, if necessary, and will unite with each other for the purpose of regulating their own prices, as manufacturers, merchants and railroad men do theirs, we may look for a more equitable division of the profits of labor, when the farmer will be able to enjoy all the luxuries which wealth, secured and retained by honest and industrious efforts, will command.

There are many things connected with farming which render it attractive. All people love liberty, and in no other occupation is a man so free as in farming. The farmer does not depend upon people's votes, nor what people think of him, for success. A man may belong to all of the fraternities, or to none of them, save to the great family of mankind, and it will not affect his business as a farmer in the least. I speak of this to show the independence of the farmer. To me, this is its most attractive feature. He can say what he pleases upon any subject, and if it does not happen to please somebody, it will make no difference with his business.

The stability of the business is one of its attractions. The man who owns a farm does not have to apply for a position yearly, and as long as he keeps his titles clear, he has no fear of a discharge until his life here ends.

The temptations of the farmer are comparatively few. I knew a merchant who was candid enough to admit that men in his business were obliged to deceive in order to make money; and were we to judge from the practice of some of them, we would conclude that he was right; but that there are successful merchants who are strictly honest, proves it to be false.

The articles that a farmer has to sell are such that the buyer can see for himself what he is purchasing, so that it is of no use to try to misrepresent them. If a man has a farm worth $20,000, with the buildings and stock, it is of no use for him to perjure himself and swear that he is worth but $1,500, for the assessor does not ask him what his property is worth, but what it is. It is quite different in a stock of merchandise, or in the case of a man who lives on the interest of his money. The temptations of

the merchant or the capitalist are so great that it is considered remarkable if such a man pays all the taxes he ought to pay.

It is generally conceded that farming is the most healthful business in which a man can engage; and this is a very important consideration, for health is prized far above wealth.

The business of the farmer does not draw him away from home evenings. It is true that the farmer must attend very closely to his business; obviously so, if he does his own work: doubly true, if he depends on hired help. Men that can be trusted with a team, and that won't steal time when out of sight of their employer, can occasionally be hired, but such men generally demand high wages, which renders it necessary for men that are in only moderate circumstances to hire cheap help and stay with them.

I should like to commend the life of a farmer to such of our lady friends as are not inclined to fall into the ranks of the rest of womankind, but who desire to enter into masculine pursuits. We have woman lawyers, woman doctors, woman merchants and woman preachers, but how few woman farmers. The wonderful improvement in agricultural implements renders the work such that women can perform it as well as men. Instead of riding out in her carriage, she can benefit her health as much by running a mower, reaper, horse rake, sulky plow or sulky cultivator. Instead of developing her muscle on a patent lifter, she can accomplish the same result by manipulating the pitchfork, the shovel or hoe. She can hire some effeminate sort of a man to do her housework and sewing, and thus to some extent reverse the general order of things.

The field for the farmer is wide. Owing to the vast unoccupied lands in the west, and the increasing demand for farm products — a demand which increases as the population increases — there is an opening for every man and woman who has a taste for agricultural attainments.

It is very fortunate that we are not all alike, and that we do not all have the same faculties and tastes, and owing to this, it is probable that about the right proportion of people to make it profitable will engage in farming as time goes on.

J. M. Smith, of Green Bay, read a paper on "Horticulture." It was a beautiful, poetical and practical lesson, and was universally commended.

Query: "Can pears be successfully grown in Sauk county?"

Discussed by J. W. Wood, P. Cheek, A. G. Tuttle, J. M. Smith, Chas. Hirschinger, G. E. Bryant, S. Favill, Grisim and Toole.

Gen. Bryant's verbal sparring with Messrs. Smith and Favill, and our local nurserymen, created much merriment, which culminated in universal laughter when Mr. Grisim, of Sumpter, gave a leaf from his experience in horticultural farming.

At 9 o'clock the convention adjourned until 9:30 A. M. Wednesday.

Wednesday morning's session opened at 9:45. Mr. Curtis being absent, his paper upon "Practical Butter Making" was read by the secretary.

Mr. Favill endorses the general tenor of Mr. Curtis's method, and emphasizes the particular points — cleanliness, care, skill, and exclusion of the air. By the Cooley system a man with five or six cows can make just as good butter, and command just as good a price, as the creamery owners.

Gen. Bryant says the Cooley system and Mr. Curtis's system differ only in the method of collecting the cream. Cooley draws off first the milk and then the cream from the bottom of the can; and Mr. Curtis dips it from the surface. "There is a good deal of humbug in the whole business. The Cooley thing is a mighty big thing because you have to pay for it." Mr. Sargent, of Massachusetts, who gets the highest price for his butter that is paid in the United States ($1.25 per pound), uses Mr. Curtis's plan, only the flange of his can cover is on the outside of the can.

Queries: "Is Mr. Curtis's plan essential to the manufacture of good butter?" "Will hard water injure butter in washing?"

Both were answered in the negative by Mr. Favill.

Gen. Bryant, in answer to the question "What is the best breed of cows for the dairy?" says there are as many opinions on that point as there are breeds of cows. Don't know which is best. Don't suppose there is much difference.

Mr. Favill would use Jersey stock for butter alone, but not for general purposes. The best breed in the world is the "Meal barrel breed."

Query: "Is it advisable for farmers to close cheese factories for the purpose of making butter, under ordinary facilities, at their homes?"

Answered by Mr. Favill decidedly in the negative. The outlook for cheese was never better than now. Does not mean that we shall get the highest price ever paid. We shall be able to sell good butter and good cheese at fairly remunerative prices. It never pays to make a poor article. The low prices at home have led our dealers to search for new markets with good success. Don't let your cheese factories employ cheap, unskilled labor. It never pays.

Mr. Dwinnell thinks the outlook is better for cheese than butter for the coming season.

Gen. Bryant says in Green county there are thirteen factories engaged in the manufacture of Swiss cheese. Nearly all of their products go to German countries. These factories are increasing at the rate of two or three a year. You will be disappointed in the new-fashioned cans unless you have ice or running spring water.

Mr. Dwinnell says that Mr. Curtis's system can be adopted for twenty cows at an expense of $25; while the Cooley apparatus for the same number of cows costs $75; but Mr. Favill thinks that the cost of the extra ice in one season in the Curtis plan will balance difference in original outlay.

DAIRYING AS A MEANS OF PRESERVING AND INCREASING THE FERTILITY OF THE SOIL.

BY STEPHEN FAVILL, OF LAKE MILLS.

Ladies and Gentlemen:— The topic assigned me is one of vastly more importance to the farmers of this country than would appear at first sight. The importance of preserving the fertility of the soil is a subject so full of interest to the agriculturist of this

country that your committee of arrangements have thought proper to have a whole paper devoted to the subject. The uninformed might ask, why the importance of keeping up the fertility of the soil? I answer, because it is the farmer's stock in trade. You would all consider the business man very unwise that so managed his affairs as to be constantly wasting his capital. So I would say of the farmer that so managed his farm that each year his lands were becoming a little poorer. I am only repeating a well known truth when I tell you that no lands are to be found in this country that are rich enough to bear continued cropping for any great length of time without having their productions very materially diminished; and the farmer that attempts to constantly take from and not return anything to the soil, will, in the end, if he avoids bankruptcy himself, certainly leave a heritage of impoverished soil to his children. Mother earth cannot be robbed with impunity, and will most certainly require the full payment of the penalty of everyone who attempts to do so. I am quite sure the most of my audience will agree with me when I say that the robbing process has been the one pursued by most of our Wisconsin farmers.

We came here, found a soil rich as nature could make it, and in our folly, have gone on year after year, raising wheat and selling it, vainly supposing there was no end to the mine of wealth we had in our soil. We have pursued this exhausting course each year, selling our farms by the bushel, until in many places there is but little more to sell. The cream is gone and we have only the skim milk left. The Good Book tells us, in speaking of our duty and privilege to our fellows, that it is more blessed to give than to receive; and in speaking of what will come to us as the result of our doings, it says, "with what measure ye mete, it shall be measured to you again." I have no doubt of the truth of these statements as regards our dealings with our fellows, and I am equally certain of the truth of the last proposition when applied to mother earth. The husbandman that best feeds the soil will find it returning to him abundantly of everything necessary for man and beast; while he that is niggardly, striving to get everything and returning nothing, will in the end

surely reap the results of his folly. If, then, it be so important to keep intact the fertility of the soil, the inquiry is pertinent, How shall we do it? My text, viz.: "Dairying as a means of preserving the fertility of the soil," would indicate that in the minds of your committee it was considered as one of the methods by which this desirable end may be reached, and I beg your indulgence while I briefly give you my reasons for thinking your committee are correct in their conclusions.

The first reason I give is that it takes less from the soil to raise food for the dairy than to raise wheat. It is well known that grass is the foundation feed for all stock, and chemists tell us that the drain upon the soil to make a crop of grass is about one-half what it is to mature a crop of wheat. Well, when we have secured the first crop of wheat, we take it to market and sell it, thereby taking twice as much from the soil as we would if we sold the grass or hay. But in dairying we do not sell it; we give it to the cow and let her take from it the properties it contains that will make milk, and then return it to the soil in a dissolved form, so that it is in condition to be taken up by the plants and produce more food; and chemists tell us that in taking out the milk from the hay, we have taken only a small percentage of its fertilizing properties, so that in raising food for the dairy we first take only one-half as much from the soil, and then we return most of this to the soil again.

It may be urged that the straw is left upon the farm, and that will furnish the fertilizing necessary to keep the land in good condition. But I ask you, does it do it? Is it not a fact, attested by the observation and experience of every practical farmer, that straw alone is of but little value as a manure, and more, that the droppings of an animal fed on straw alone are almost worthless as a fertilizer. Just here I want to digress a little to present some of my notions about the practice of many of our farmers who try to winter their stock mainly upon straw. I am aware that in what I shall say I shall not be thought orthodox, but I can't help that. They are my convictions, based upon extensive observation and experience, and if any of the farmers present can show me my error, I shall be glad to see it. I make this statement, viz.: that

it is not economy to make straw of any kind any considerable part of the feed of any animal, unless we wish to reduce the animal in weight. I am aware that many farmers think that straw, with a little corn, is good enough feed for young cattle, and many compel even their milch cows to earn a good part of their living at the straw stack. But I ask you, what are the results of this kind of feeding? Do the cattle fed in this way grow and thrive, or are the facts in the case that they barely subsist — just squeeze through the winter and come out, as the saying is, "spring poor," and in such a dilapidated condition that it takes them half of the summer to get fairly to growing, and to get back to the condition that they were in the fall before.

What is the object of raising a bullock? Is it not that we may get all the growth and all the weight we can in the shortest time consistent with economy? And I ask you, is it economy to keep an animal four years to get the weight that might be reached in two years with better care and better feed?

Many seem to forget that the only difference between growing a bullock in winter or summer is that the food to grow him upon in winter has to be stored for him, while in the summer he can pick it for himself. It is all the product from the same soil, and it takes less land to furnish the winter feed than it does for summer grazing.

Will some of the advocates of straw feeding (and they are many) tell me what they gain by feeding their straw. You will answer probably, We keep our young stock upon it through the winter. But you have to feed some grain with it. Well, what have you gained by keeping your animal through the winter? Is he any heavier in the spring than he was in the fall? If you answer truthfully, in regard to straw fed animals, you will say they are not. Then I ask again, What have you gained? Not anything in weight, not any growth, and (unless you have fed grain freely) your stock will be in much lower condition than when you started with them in the fall. To my mind, the summing up of the whole matter is simply this: You have thrown away the grain you have fed, and all the labor you have expended in caring for them. You will see, I place a very low es-

timate upon straw as a feed for anything. It is just the thing for bedding, and I would recommend its free use in keeping our animals clean and warm. But never compel them to eat any more of it than they will from choice; and you will find if you give them something they like better, they will eat but very little of it.

Although not included in my text, I want to give you my notion of raising steers for beef. I would keep them in condition so that if one of them had the misfortune to break a leg he would be good beef at any time. I mean from the time that the calf has learned to drink, till he finally goes to the shambles. You know it is the condition of the animal that determines the price per hundred. It is fat the butcher wants, not bone, and it seems to me that economy would dictate that we should so feed as never to allow the animal to lose an ounce he has gained, but to be constantly putting on more. And I ask, can you do this with straw? Can you do anything more than barely support animal life with it? As I have wandered from my text, I think I will give you briefly my plan for growing the stock in the manner I have been describing. You all know that if you give your stock good pasture and good water in the summer they will grow and thrive. But how to get them through the winter without too much expense, is the question—I mean and keep them growing as they do in summer. This is the question I am going to try to solve for you. The process is a very simple one. It is first to provide warm shelter for your animals, and secondly, as you all know that animals will thrive and grow fat upon grass, so we say cut the winter feed while it is still grass, and not wait until it becomes grass seed and the stalk a woody fiber. And then do not dry it too much in the sun, but put it in your barns while quite green, and you will have feed that will grow and fatten your animals almost like grass. Upon this point of cutting your grass while green, I feel that I cannot be too emphatic. The rule when I was a boy for cutting clover was, when about one-half of the blossoms were turned brown it was ready to be cut, and timothy must stand until the second blossoms had come on. Now I say to you, when the earliest blossoms appear on the clover it is ready, and if you have much to cut you cannot wait even for that,

but must begin sooner, or some of the last cuttings will get too ripe; and timothy should be cut as soon as most of the heads have made their appearance. Do not wait for any blossoms. If you will give this matter a little thought, you will see that after the grass is full grown every move it makes toward maturing seed takes just so much from the juice of the stalk and leaves, until it finally becomes worthless for anything but seed.

I know of a man in Northern Illinois that makes a specialty of fattening steers in winter, and he does it mainly upon hay. He prefers to buy his steers in the fall, and mow his land and feed in the winter, instead of pasturing in summer. But remember he cuts his winter feed while it is grass, not when it has become dry stalks; and I will add, he is a very successful farmer financially. This question of the proper time for cutting the grass which we intend for our winter feed is so important, that I feel justified in urging it upon the attention of the farmers in this convention. I feel confident there is no one thing by which our farmers suffer so much loss as by the practice of letting their grass get so old before they cut it. If any of you doubt the truth of my statement, you can easily settle the question by experimenting a little. Cut a portion of your hay early, and the rest when it gets old, and note carefully the difference, and if then you come to the conclusion that I am wrong, you can very easily continue in your present practice of feeding your stock hay seed and dry stalks. I shall be met just here with the statement that in cutting our hay so early we do not get nearly so much weight. I admit that (if we cut but once), and if pounds are what you are after, and not value, I should advise you to continue your old practice. But if you will adopt my plan, and cut your hay so early that it will grow a second crop, you will find you have more pounds and every pound of double the value of what you get by your present plan.

Please pardon this digression and I will come back to the consideration of my text, and answer directly the question, does keeping a dairy, or, in other words, stock growing (for they both mean the same thing so far as the farm is concerned), keep up the fertility of the soil? I answer unqualifiedly it does, and that

this is one of the especial advantages of dairying, that the lands upon which stock is kept are constantly growing richer, while raising grain and selling it in the market is constantly impoverishing the soil. It not only keeps the soil in as good condition as when you begin, but it is constantly growing better. In the part of our state where I have lived until within a short time (I mean in Jefferson county), there were some large dairies started some fourteen years ago, and the farm that then would carry only forty cows will now carry fifty, and I feel that I hardly need to take your time to tell you how this desirable result is attained. It is by feeding to the stock all that is raised upon the farm and then returning it to the land again. True, we take out of it our butter, cheese, beef, pork, wool, mutton, etc., and yet we return to the soil all of the ingredients necessary (except what is furnished by the atmosphere and water) to make us another and larger crop.

Now, as we are going to maintain the fertility of the soil by manuring, then comes the question, how shall we do this? In what way shall we apply it to land? How shall we manage to get the most out of the fertilizers we use? I shall attempt to answer these questions only so far as they relate to barn yard manure. And I desire to say before I commence, that I shall not be disappointed if some of you do not agree with me fully in some things I may say, but remember it is I that am responsible for the heresies (if they be such) that I am teaching.

My first direction is never to put any manure on the land till it is well rotted, and then always put it on top of the ground, and never plough it under until it has laid long enough for the most of the strength to be carried into the soil by the rains. I am aware that these directions are directly opposite to the practice of most farmers, yet I am firm in my convictions that they are true principles. Let us look at this matter a little. I think you will all agree with me when I say that the manure is of no value to the growing plant until it has been dissolved by the rains and has been incorporated with the soil. Then, and only then, can the plant appropriate it. If this be so, where shall we put the manure that it may be most easily reached by the rains? Certainly you will say on the top of the ground. Well, then, as water

always runs down hill, it will most certainly carry the strength of the manure into the ground, just where it is wanted by the growing plants. But suppose we put this on the land and immediately plow it under from four to six inches. The grain is put on the top of the land and slightly covered. Then when the rain comes and penetrates to the manure and below it, what becomes of its fertilizing properties? I do not say that manure treated in this way is of no value, but I do say that very much of its value is lost. It is lost by being so far down that the roots of the grain do not reach it. It is well known that the roots of most grains stay near the surface, that is the roots that take from the soil and make the growth of the plant. I do not forget that red clover and some such plants have a tap root that strikes deep into the earth for moisture. Yet these plants have their smaller and growing roots near the surface. I am well aware that my directions condemn the practice of many of our farmers, and I intend they shall, for I believe their practice is wrong.

Only a few days since I was discussing the question of saving cornstalks for fodder, and the gentleman with whom I was talking said they were not worth the labor that it took to save them for feed. His theory was that they were worth something for the stock if left standing in the field, and then he said they were just where they were wanted for manure. It is true they are where they are wanted for manure, but how much manure do they make? And then again, we disagreed entirely in regard to their value for feed. I regard an acre of cornstalks that are cut before the frost comes, or before they get too ripe, and then taken care of afterwards, fully equal in value to one ton of the best hay that we can make. And then again, if the stalks are brought into the yard, letting the cattle eat what they will, and leaving the rest in a pile so they will rot, they make enough more manure than they would if left in the field, to more than pay for the labor of getting them in.

As fertilizing is in part my theme, I will trespass a little upon your time to give you definitely some of my notions. In the first place, I would so locate my barns that every rain of any amount that comes would not carry my manure away into the

creek, or down onto the marsh. It is true that a barn upon the side hill is nice, so far as regards keeping the yard dry, and it is also equally as wasteful as it is nice. Every rain is a constant drain upon your manure heap.

Well, after locating my barns so as to avoid all unnecessary drainage, I would leave each winter's accumulation of manure in the yard until after haying and harvest, and then I would put it upon the land that I intended for corn the next season as soon as I could, and would have it spread evenly over the ground as fast as drawn, and you will find the next spring when you plow the land, that it will be mellow and your corn will come up readily and will grow from the start.

If you have some meadow land that you want to build up a little, top dress it with some well rotted manure, and you will be surprised at the improvement it will make in your crop of hay. One word more and I will leave the floor for others, for I see plenty of farmers that are just aching to pitch into my heresies. What I want to say is this: Make all the manure you can, and be sure that you apply it to the land in such manner as to get the best returns from it; and I want to say further, that the richer the food given the animal the better will be the manure, and as milch cows will double their quantity of milk if well fed with grain, you will see your grain will, if fed to your cows, yield you a double profit.

In answer to query, Mr. Favill would cut clover after the dew is off in the morning, and put it into a tight barn before night in big mows. If you stack it, dry it more or you will lose it. The last hay he cut was clover put up in this way, to the extent of about seven tons, and it was the best hay he ever fed. It looked dark and brown, but his cows ate it as clean as they would eat meal.

Mr. Toole would pack his hay very tight, if possible, and thinks the air-tight barn would also help to preserve the hay. Thinks the best manner of applying manure for permanent effect is in top-dressing meadow land.

In answer to the question, "What shall we do with the straw?" Mr. Wood would use the straw as food, but wants a breed of hibernating domestic animals, that can be laid away in the fall and be taken out in the spring in good condition. Thinks that the fact that the manure from high-fed stock is richer than that from the straw-fed animal, is evidence of wasteful feeding. Knows no way of having good hay in the spring, unless it is put up dry.

President True has seen the hibernating process tried. The animals were successfully laid away on straw, but nobody was able to resuscitate them in the spring.

AFTERNOON SESSION.

H. B. Knapp believes in Mr. Favill's plan of curing clover. Has practiced it with success. Cattle eat it clean, when they will eat straw before eating clover cut after the blossoms have turned.

Mr. Fish, of Winfield, has been, until the last few years, of the opinion that clover must be well dried before storing, but is becoming more and more convinced that it will do to put it up much greener, although he would hardly dare put it up as green as some gentlemen advocate. Found a stack which he supposed would spoil because stacked so green, in fine condition this winter.

Gen. Bryant raises a good deal of clover, but stacks it all, and of course dries it more thoroughly than if he put it in barns. A neighbor puts green clover in a tight barn, and has for ten years, and his cattle eat it clean. Is convinced that it is the best way to cure clover if you have a tight barn. Salt does no material good in the barn. Salts clover in stacks. Don't believe in using lime on hay.

Mr. Wood thinks there is no doubt that spontaneous combustion does sometimes occur, and might occur from the natural heating of green hay.

In answer to question, Mr. Favill says it will do to pack green clover upon scaffolds where the hay can be only ten or twelve feet deep.

Mr. Baringer thinks the condition of the atmosphere after put-

ting up the hay has much to do with its keeping. Finds spots in his hay that are mow burnt, although generally in fine condition. In a barn not tight, it kept well and came out green and good.

Mr. Grisim endorses the plan of cutting hay given by Mr. Favill, but cannot agree with his method of curing. His hay will heat and mould if not well cured. Has a steer two years and ten days old which weighed 1,400 pounds, and never had a taste of straw. Would not insult his cattle by offering them straw.

Mr. Knapp put green hay upon a scaffold three or four feet deep and it spoiled. Has had this experience twice. Can put in six or eight loads a day green, with safety, if the top is kept covered with straw.

Mr. W. Waterbury takes great pains in stacking straw and lets his stock run to it. Feeds hay twice a day in connection with the straw. Finds the green mowed hay preferred by his cattle. Can feed straw and grain to sheep with better results than to any other stock.

Mr. Cook thinks barley straw better than any marsh hay.

Mr. Walbridge lost three steers by giving all the good oat straw, water and salt they wanted, and nothing else.

Mr. Knapp feeds hay and lets cattle run to straw. Thinks barley straw better than any wild hay and better than ripe clover hay.

Mr. N. W. Morley does not feed straw to cows. They eat considerable straw in the yard. Mr. Johnson does the same. Mr. Walbridge will give one-fourth more for early cut hay than for hay which has seed in it.

According to announced programme, Gen. Bryant was called upon for a paper. Has no paper prepared. Never saw or heard of the programme before. Would like to stir up Major Williams a little if he could. The Major is getting old and he does not fear him as much as he once did. Read from State Agricultural Report "Dairy cows, and how to breed them," which was well received by the convention.

R. D. Torrey, of Oshkosh, spoke upon the subject of Agricultural Conventions. They are of comparatively recent origin. At

first it was hard to get farmers to take any interest in these meetings, and one or two men had to do the work. This is the seventh convention held in the state this winter, and all well attended.

Compliments this convention upon the readiness of citizens to take part. It is the duty of every man to give his thoughts to the public, even if absurd or worthless, because somebody corrects him, and the good result is soon seen. It is a duty we owe to one another in all classes and professions in life, to give the world the benefit of our best thoughts. Thinks little of fairs. Agricultural societies are organized for improvement — for holding such meetings as these. Fairs show the result of these conventions. Fairs not the objective point — simply a result of some other thing, if that other thing be properly conducted. The purpose of agricultural societies is education — to place farming where it belongs, at the head of all occupations. Ought to be a a farmers' club in every township, meeting once in two weeks.

Returning to the topic of using manures, Mr. J. M. Smith would not plow under manure. Makes compost heap and spreads upon the surface. As a general rule, would decompose manures so that they would be more readily available. The man who uses the most manure will invariably be the most successful farmer. Is every year more surprised at the productive capabilities of the soil. Puts manure on gardens, on the surface in the spring, after plowing.

Mr. Favill would spread manure in the fall and plow it under in the spring, if the land was reasonably level.

Mr. Fish thinks common sense a fine thing in farming. Would plow under coarse manure on stiff, heavy soils. On light soils would put well rotted manure on surface. Thinks permanent results better to plow under crude manure.

Mr. Grisim, for potatoes, draws manure in August after plowing; spreads in the spring and gives a light plowing.

Mr. Bryant says the first agricultural convention ever held in the state, was got up nine years ago by the Morrows, then editing an agricultural paper in Madison.

A successful farmer made good pastures on sandy land by spreading refuse straw thin on the ground. When asked how

thin, replied that the man who did it was a preacher, and said that he spread his straw as he did his sermons, as thin as possible. Believes fall plowing the best, but plows shallow. The great trouble with farmers is that they are not sociable enough. Likes farmers' clubs, but likes the Grange much better.

Mr. Baringer recommends barnyard manure for heavy clay soils, and rotted manure for light lands. Plow under straw and found good results. Puts long manures on baked soils. Finds out the nature of the soil and treats it accordingly.

On motion, Messrs. Wm. Toole, J. W. Wood and W. T. Kelsey were appointed a committee to draft resolutions.

Several gentlemen paid deserved compliments to Major Williams for his efforts in introducing Short-horns among the farmers of the state.

Query: Which is better, to turn off steers at two or two and a half years, or keep them longer?

Gen. Bryant would not keep a steer after he is three years old. Beef is better at that age. Feed as well as possible and sell at that age. Ought to weigh from sixteen to twenty-two hundred weight.

Mr. Williams says it takes less food the first year, more the second, and still more the third. Increase of weight in proportion to feed — greatest first year, less the second, still less the third, and so on till the fifth year, when increase ceases.

Gen. Bryant would feed corn as soon as they can be made to eat it. Feeds shelled corn. Don't pay to give one-eighth to the miller.

Mr. Grisim fed two calves four quarts each of oats, potatoes and meal. Last winter fed ground corn and oats, three pecks a day. Fed meal in summer six quarts a day. Fed this winter twelve quarts of meal twice a day. Present weight of the steers, at nearly three years old, about thirty-five hundred weight. Is a meal man. Wants everything ground. Feeds all they will eat of corn meal. Steers seven-eighths Durham. Intends to sell them this spring.

Mr. Favill says it pays to feed meal in summer. Thinks the majority of feeders feed whole corn and let the hogs follow the

steers. Thinks it better to feed whole in this country where corn is cheap.

Mr. Waterbury has been in the habit of grinding feed. Does it at home with horse power. Thinks cattle do better on ground feed. Likes corn and oats in equal parts for young stock. Has had better results from that way. Takes calves from cow at a week old. At two weeks, skim milk for them; at six weeks, feeds sour milk containing scalded oatmeal.

Committee on resolutions reported as follows:

"*Resolved*, That the thanks of this convention be cordially extended to the Regents of the State University for the assistance which they have rendered us, by co-operating with our society in providing a programme for this meeting, and to the gentlemen who have so ably represented them, and contributed so largely to the interest of our present convention.

"*Resolved*, That we find these conventions of great value in awakening general interest in agricultural matters, and we hope for further co-operation on the part of the regents in our future meetings."

These resolutions were unanimously adopted. The convention then adjourned *sine die*.

ADDRESS OF HON. N. D. FRATT,

(President of the State Agricultural Society),

At the Industrial Convention held at Appleton, February, 1880.

Mr. President, Ladies and Gentlemen of the Industrial Convention:—In accepting the invitation of the management to be present, and participate in your deliberations and discussions, I desire to express thanks for the liberty given me in that I am not assigned any definite topic; that I am not tied down to a discussion of the methods of teaching reading, writing and ciphering; neither fenced in with the dairy, the sheep, or the colts, but am left fancy free to canter over the whole wide field of education and agriculture. I am also helped by

the thought that on such hackneyed themes I shall not be expected to say anything new. Education is a very important word. It covers a field as wide as human life, and some very good people seem really to believe that its effects are not bounded by this life; that what we are, what we make of ourselves here, will have something to do with our hereafter.

But I must go no farther in this direction, lest I trespass upon the fields that belong to others. Being as I am a farmer, you might naturally expect me to confine myself somewhat to the agricultural aspects of education. But I shall consider also the educational aspects of agriculture. Shall claim the liberty of looking at each of these large words through the lens of the other. It has sometimes seemed to me that the very ancient record which reads "cursed be the ground for thy sake," must be in some way a mistranslation; that it should read, "blessed be the ground for thy sake." Agriculture, as a means of education, may be reckoned among the most important. The farm homes of our land have educated for us the noblest men and women, have produced the very highest type of character. It was the "embattled farmer," at Lexington and Concord, who fired the shot heard round the world. All along the line of the ages, farmers' sons have not only been first in war, but first in peace, first in the learned professions. Every man who has won substantial success in any pursuit,

> "Has learned to tread the narrow way
> That leads through labor to the light of day."

And it seems to me that there is no better place than a well-regulated farm home in which to learn the primal lesson of obedience to the law of labor. It is a lesson a little difficult to learn, and some people never seem to master it; but it is the only path to freedom, the only road to high honor and true manhood. The ancient idea of agriculture was nomadic. Abraham, Isaac, and some of the other old settlers, hunted the green fields, pastured them short, and then sought other pastures new. But we have moved away from the idea of changing farms with as great facility as we change our clothes. We are learning to regard the farm as

a piece of the solid earth, that is ours to beautify, improve, cultivate and make productive; ours not only for an abiding place for ourselves, but the future home of our children. It is a remarkable fact, that nearly all men that are not farmers, expect to be, or at least hope to be some day. Probably nine men out of ten hope to go to their final rest from their own broad acres, amidst the peace of plenty, and the power of such peace as comes to one amid rural sights and sounds. It is a pursuit that tends to excellence in the formation of character, that tends to industry, economy, temperance and honesty, and we are not suprised at the enthusiasm of the poet Whittier, when he says:

"Give fools their gold and knaves their power,
Let fortune's bubbles rise and fall;
Who sows a field or trains a flower,
Or plants a tree, is more than all.

"For he who blesses most is blest;
And God and man shall own his worth,
Who toils to leave as his bequest
An added beauty to the earth."

The time is not far back in the past, when the distance between intellectual and business pursuits was very great; when to have a college education was to be under bonds to some one of what used to be considered the learned professions; but of late years the practical side of life has been in the ascendant. A thorough knowledge of chemistry is good for the farmer as well as the physician, and some pretty good scholars and thinkers are dividing their time between philosophy and patent rights. The inventive and practical spirit of the age has wrought manifold blessings. It has so ornamented and elevated manual labor, that it is no longer the exclusive pursuit of a lower or lowest class. Muscle has gone into partnership with educated mind, and the results thus far have been good. It is by means of this partnership that man has so utilized the might of the elements as to get a good many of his chores done by machinery and the gods; that he sets up his little wind mill, and makes old Boreas pump the water for his stock; by means of this partnership, he stretches a little wire, and makes the fiery signal of the storm cloud a nimbler

Ariel than is dreamed of in fairy fable or demonology — a tricky spirit that carries messages quicker than lightning, and for a quarter will tell the farmer the secrets of surpluses and shortages, across continents and over seas, so that he may know what to sow and when to sell. That the farmer of to-day is given his choice to ride or walk, while plowing, is because somebody has given earnest thought to the improvement of the plow. That a lad of twelve years can cut and put into neatly bound bundles or sheaves from ten to fifteen acres of grain in a day, where, within the memory of some of us, it was the work of two strong men to cradle and bind two or three acres in a day, is because many minds have given their best thought to the improvement of the reaping machine. We have not gone from the old hand sickle of early days to the latest improved self-binding reaper, without severely cudgeling the brains of some excellent, practical, thoughtful mechanics.

It is a cheering reflection that this partnership between muscle and mind is to be perpetual; that cunning thought and skillful hands are still busy devising improvements in every apartment of the wide field of winning bread from the culture of the field of agriculture. On the strictly educational branch of the theme, I advance the new proposition, that education is the grand route to perfection. Many men are more or less perfect in some one thing. There are men who are pretty nearly perfect of head, hand or heart, but rare the instances where head, hand and heart are throned in a consummate trinity of faculty in one person. We see men with plenty of mental acumen, but scarce anything of emotive force. There are people who strike us as having all run to head, and others as having all run to heart; there are perfect mechanicians, perfect mathematicians, perfect artists, perfect scientists, and perhaps perfect moralists, but no perfect *men*. Some people who know one thing pretty well are well satisfied they know everything; or doing one thing with facility, fancy they can do anything. Of course education involves the making the most of the particular faculty of a man, but in its fullest and best significance it covers the whole man in the sum total of his capacity. Education properly understood stops not short of the

educing, the drawing out of the man entire. Many the men possessed of special abilities, and intent upon single purposes, who have fallen into the most awkward predicaments in the world, simply because they had no thorough, expansive education to sustain them. Narrow gauge effort has its advantages, but large, generous culture commands margin for any and all exigencies.

Sometimes the merchant says, it is enough for his boy to become a good business man, and the farmer that his boy shall have only sufficient education for the farm. This is not fair toward the man that is in the child. Education ought to aim to equip every soul with a wide margin for contingencies. Education is the key to the emancipation of man. It confides to him his birthright to be the pupil of nature, the peer of men, the child of immortal ranges. Education alone brings the world up to an equality of circumstances. The theory upon which our government is founded, is that of universal education — a system of common schools, and high schools, that shall meet the wants of all classes; schools good enough for the wealthiest and at the same time not too good for the poorest. They must be good enough for the wealthiest in order to be good enough for the poorest. This is a grand theory; no doubt about it; but in practice how stands the matter? What is the price per annum any wise parent of moderate means is willing to pay for the education of a son and daughter? How many would name a sum less than twenty-five dollars? What is the price at which the state of Wisconsin is seeking to do the all-important work? It varies from five to ten dollars a head. Say an average of perhaps eight dollars. It is a paltry, mean, stingy sum. If you will take the trouble to analyze the taxes paid by any county in this state, and see the sum we pay for ignorance and crime growing indirectly out of stinginess in school appropriations, you may come to the conclusion that the oft-repeated laudation of our system of common schools is the cant of liberty.

If there is any principle which the civilization of the age has settled, it is the intimate relation existing between intelligence and good citizenship, and ignorance and crime. Our theory is the best in the world. Our practice, in many respects, needs to be reformed altogether. We need to spend more money on our

common schools, for it is chiefly by means of these that we are enabled to educate our children, and keep around them, at the same time, the influence of home. If the broad proposition be true, that the education of the masses is the foundation upon which we are building a government and a nation, let our master builders look well to the foundation before we proceed too far with the superstructure. It is the height of folly to quarrel over the ornamentation to a cornice of a building whose foundation is insecure. If it be true that crime increases in the ratio of ignorance, that an entirely uneducated man is nine times as likely to be a criminal as the man who has been taught, and more than one hundred times as likely to become a criminal as he who has been thoroughly educated, then it is not only lawful for the state to levy taxes to build school-houses and hire teachers, but it is next to criminal neglect of the state not to compel the attendance of the children. If those who constitute our ignorant and criminal classes will not educate their children, the state *must* do it on the broad principles of justice and self-defense. Every child, whether well born or not, inherits the right to be well taught. Man is rather a formidable animal, both from his passions and his reason. To train this animal to a proper sense of justice and virtue, by the restraint of fear, by the encouragement of hope and duty, is the grand work of education. The state should look upon it as tragedy, that one man should die in ignorance and crime who had capacity for knowledge and virtue.

Years ago, Horace Mann, Massachusetts' eminent educator, delivered an address at the opening of a reformatory institution for boys, during which he remarked, that if only one boy was saved from ruin, it would pay for all the cost and care and labor of its establishment. After the exercises were over, a gentleman rallied Mr. Mann upon his statement, and said to him, "Did you not color that a little when you said all the expense and labor would be saved if this institution saved only one boy?" "*Not if it was my boy*," was the solemn and convincing reply.

BUSINESS OPPORTUNITIES FOR WOMEN.

BY MRS. REBECCA V. HAZZARD.

In view of the general financial depression of late years, the depreciation of values, and the consequent stagnation of business, the subject of business occupations for women becomes a perplexing one. When I see small armies of men wandering over the country, houseless and homeless, without occupation or purpose, and apparently without hope, I am led to ponder carefully a question so difficult of solution. Moreover, I have questioned these men, and while I have found some who were evidently suffering the penalty of their own ill-doing, others were as certainly the victims of circumstances over which they had little control. Among these men one finds mechanics, such as gunsmiths, tinners, workers in iron, railroad laborers, farm hands, and others, thrown out of employment by the closing of manufactories, the cessation of railway building, the introduction of machinery into the harvest field, and like causes. I could not close my eyes to these facts, nor to others which have come under my observation. Within the last month I have known an advertisement in a morning paper, for a book-keeper or other merchant's assistant, collect in a few hours applicants amounting to hundreds; refined, apparently educated men, contending for some paltry clerkship with an eagerness which could only have been born of dire necessity.

If these, then, are the straits to which those are reduced who have been trained to labor and to the routine of business, how shall others, without training or experience, enter the lists to engage in such a fearful struggle?

Yet this very condition of affairs indicates a necessity for new activities. It creates anxiety and alarm among those who have hitherto had but a small share in the bread-winning division of labor, or its emoluments. If the husband falter in his efforts to secure food and clothing for the little ones, the wife must supplement his labors by her own. If the father fail, and faint under the burdens of business, the daughter must take them up as best she can. These are cases of necessity; but in addition to these,

we must not lose sight of that growing feeling of self-respect among women which prompts them to avoid the bread of dependence. To find a suitable channel, then, for their activities, becomes an absorbing question.

We have all rejoiced on account of the wider opportunities accorded woman, of late years; notably within the last decade. She has worked her way into many a hitherto forbidden field. She has been admitted to the ranks of journalism, the lecture platform, the professor's chair, the medical clinic, the court room, and the sacred desk. Slowly and with exceeding pain, she has scaled these exalted heights; and now, would it not be well to inquire what she finds there? A recognition of equality and consideration beyond price, it is true; but what promise is given of useful labor, with its accompanying pecuniary reward? In the past, what were known as the three learned professions, relating to law, medicine, and the sacred office, offered the greatest inducements to the aspiring and better educated classes of young men. But, now that a liberal education is within the reach of all, do they promise the same success to those who are seeking a means of livelihood? May we not ask if these professions, toward which we have been toiling with so much eagerness, retain their traditional features? or whether, modified by circumstances, they may not have changed character altogether? Perhaps it will be found that they have entered upon that stage of their history which indicates decline. Take the profession of the law, and observe the changes it has undergone.

Quite within the memory of some of us, the ambition of an educated youth oratorically inclined was to become a young lawyer. A case of murder or of arson was sufficient to call forth the most labored efforts in the way of speech-making, and upon occasion, young and old of both sexes would flock to the court room to witness these forensic displays. But it must be a case of rare interest, indeed, which calls any one now to listen to a lawyer's plea. Court-room oratory may be counted a thing of the past. I am told that lawyers now find their most lucrative practice in the settlement of commercial questions — those relating to the transfer of merchandise, insurance policies, land claims and mat-

ters of like character. In this direction some attain wealth and distinction. But the field is not a wide one, and many must fail where a *few* succeed. "There is nothing for lawyers to do now," said a discouraged member of the fraternity not long since; "people settle all their disputes by arbitration." One can imagine this becoming more and more true as time and civilization advance. The truth is, the world is tired of litigation, and is looking about for more peaceful methods of mending its difficulties.

Turning to the medical profession, we find a change also. The awe and mystery which once surrounded the man of medicine have in a measure departed. Take for example the matter of prescriptions. Once the mother would have thought herself presumptuous had she sought to decipher the cabalistic signs, upon which, perhaps, the life of her child depended. Now, with a little light thrown upon them, how simple they appear! We cease to reverence what we fully comprehend. Skillful, conscientious physicians will always be in demand in any condition of society; especially in that branch of practice which ought to be surrendered entirely to women. But at the present rate at which medical colleges turn out graduates, the supply is far in excess of the demand. One feels a pang of pity when reading the long list of names which appear after the commencement of some medical school, knowing that grey hairs and many a painful struggle must come before these striplings achieve success.

Observation confirms the opinion, that in a community possessing a moderate health-rate, one physician is sufficient for every eight hundred inhabitants, and even that one need not expect more than a very moderate income, unless he possess exceptional ability. The laws of life and health are coming to be better understood, and just in proportion as they are known, must the demand for medical services diminish.

As regards the clerical profession, it may be thought at first sight to offer a more congenial field for woman's energies. The pulpit, with its teachings of peace and charity, seems peculiarly adapted to her capabilities. Certain it is, that while sin and sorrow remain in the world, there will always be a demand for woman's activity as a benevolent force. But as we are now looking at the

matter from the material stand-point, this department of labor cannot be considered. It is a well known fact, that young men are not entering this profession now with as much eagerness as they once manifested. Churches of all denominations complain of the decline in this respect. This disinclination may not arise from the want of pecuniary incentives. There may also be mingled with it, a growing perception of the difficulties which beset the profession. The times have changed since Bibles were chained to the pulpit because of their great value and scarcity. The printing press has wrought a complete revolution in the ministrations of the pulpit.

How deeply the officiating clergyman must have felt his responsibility when he knew himself to be the only channel of communication between the Sacred Word and the people before him. On the other hand, what must be the despair of the modern minister, when he rises to address an audience, fresh, perhaps, from an essay of Emerson or Mathew Arnold, or from a sermon by Frederic Robertson, Wesley or Channing. He knows that if the pews could respond, his propositions might often be controverted. We have all heard of the sailor who preferred the service of the Episcopal Church because it gave him an opportunity to "talk back."

The thought of an enforced acquiescence on the part of hearers, must have a depressing effect upon the speaker, unless he knows he has that to give them which they would otherwise lack. Those modern institutions, too, the Sunday school and the lecture lyceum, have encroached upon the province of the pulpit. People grow impatient of admonition, though they may still bear instruction. They may accept the teacher while they weary of the preacher. Watching these indications, I cannot but conclude that while there will ever be temples for worship — for prayer and praise, and the interchange of devout sentiment — the priestly office must decline. We may regret this, but I think we shall find that it is only the result of a fully developed Christianity. For where all are kings and priests unto God, the necessity of a delegated few, with special functions, is lessened.

Accepting these views, it cannot be said that these professions

offer a very inviting field for the activities of woman. Where, then, can she expend her energies with any hope of adequate compensation? She is free to occupy the lecture platform, but rare indeed must be the gifts which here meet with success. Journalism holds out some inducements, but as yet, with a few exceptions, she must content herself with the mere husks of the profession. She may write up the household, or the fashions, or send vivacious letters from distant places, but she rarely occupies the editor's chair. General literature offers wider opportunities, but except in the highest departments its rewards are uncertain and precarious.

Practically, there are but two vocations which can be said to belong to women, viz., teaching and domestic service. The first of these has long been overcrowded, and for the second, American-born women have an aversion which is not wholly without reason when we consider the hard conditions it entails. Formerly, spinning and weaving were considered essentially feminine employments, but they have long since passed from the hands of woman. Later on, millinery and dressmaking were thought to be her special province; but now, the large dry-goods houses and the men milliners absorb these industries also. A readjustment of vocations is slowly but surely coming about. Women are awakening to a sense of the situation. Necessity, that stern mother, lays her hand heavily on many, but in the fierce competition which now enters into all business pursuits, a woman must be wise indeed, and energetic withal, who finds her place, and battles successfully for bread.

If we undertake to point a way out of these difficulties, let us insist, first, upon a special training for girls. Let every girl be taught some branch of industrial art, upon which she can depend for a livelihood, and this without respect to her condition or circumstances. Let no mother feel that she has discharged her duty to her daughter, until she has endowed her with the ability to earn her own living.

But until this can be accomplished, and to meet the present necessity, let small industries be encouraged. These not only help to eke out the family income and lessen the burden for

fathers and husbands, but they give self-respect and independence to women. It is said the French indemnity resulting from the late Franco-Prussian war, was paid largely by the small industries of the common people. The genius and habits of our own country are not as favorable to labor of this kind as are those of the French. But something might be done if our women would throw aside the foolish pride which makes it discreditable to earn money. The rearing of poultry, the care of bees, the making of butter, kitchen gardening, and flower and fruit culture, are industries which can be made to yield something even by those who have the care of families, if they have a little spare time at their disposal. The introduction of silk manufactories into this country will make the rearing of silk-worms an object of attention. Some young friends of mine who have been experimenting in this direction succeed well. They have found, too, that the leaves of the osage orange can be used for feeding the worms quite as well as those of the mulberry.

These industries can only be practiced by those who live in the country, while for others there are the various kinds of fancy knitting, lace-making, and, need I say sewing and embroidery. It may surprise some of us to be told that hand-sewing is in danger of becoming a lost art. It seems so short a journey back to the days when a knowledge of the primary stitches in needlework — the hem-stitch, the fell, the back-stitch and herringbone — were indispensable to a young girl's education. She might misspell her words or misplace her accents and be readily forgiven, but no such clemency could be extended to an ignorance of needlework. The sewing machine must be charged with this change. An observing teacher in the St. Louis public schools told me, not long since, that she felt assured that very few of the girls in her department knew how to sew. She was convinced of this, from the fact that so many of them would appear from day to day with rents in their clothes, which the most trifling expenditure of time and labor would serve to repair. Nothing but ignorance of the art, she felt sure, could account for this seeming negligence among girls who were otherwise neat and orderly in their habits. While we can but rejoice that women have at least

a prospect of being released from the slavery of the needle, we should be careful that no art slips from us that can be turned to use or profit. It would be well for mothers still to instruct their daughters in the simpler forms of needlework. Give them knowledge enough in this direction to meet the small emergencies of life, at least. Indeed, boys might also be taught this art with profit.

Something, too, can be done in the way of decorative art. Painting on porcelain is now taught in the various schools of design in the larger cities. Women show an aptitude for acquiring the art, but it is not remunerative unless the artist possesses a large circle of friends who prize her work. Clergymen's wives are particularly fortunate in this respect. I have known of one instance where a lady connected with the St. Louis School of Design was said to have made a thousand dollars in about eight months, through the eagerness of her friends to possess specimens of her work. Another lady of the same school was overwhelmed with orders for Kensington embroidery; but in this case there was unusual genius shown in designing and executing the patterns. On the other hand, if one should apply for employment at the large houses dealing in this ware, it would be found that each house employs a foreign artist, who works perhaps at very low wages in some little dingy room in a back street; but whose work bears marks of that peculiar professional skill, the result of training and experience. What I have said of porcelain painting and Kensington embroidery is also true of wood-carving and other branches of decorative art. They are pleasant and valuable accomplishments to possess, but not as yet specially remunerative.

An institution, called a Woman's Exchange, has recently been established in St. Louis. One, I believe, has existed for some time in New York. Here woman's work of whatever description can be sent for sale, with very slight expense to the owner. Canned fruits, pickles, jellies, cake, articles of utility, and fancy work of every kind are received; the only condition being that the articles shall not fall below a certain standard of merit. Institutions of this kind will serve to utilize a great deal of labor

that might otherwise be lost. They will also add something to the depleted purses of those who take advantage of them.

But if women are ever to become anything but the merest tyros in the world's field of labor, they must resort to more vigorous means. They must avail themselves of the forces which bring success. To begin with, as before observed, they must have a special training. Skilled labor is now the great want of the world. Without it nothing of permanent value can be achieved. In the next place, and this I wish to emphasize, *they must learn to combine their forces.* The whole tendency of modern thought, in business affairs, is toward co-operation. This is seen in the growing practice of large business houses of resolving their firms into joint stock companies, and in a thousand other ways.

"Unite or die" was the motto inscribed on a banner during the early part of the Revolutionary War, referring to a union of the states. This maxim might well be adopted by persons of limited capital who contemplate business pursuits. Women are proverbially poor. As capitalists they have little influence in the world's money marts, and they have not as yet learned to value the strength which comes from combination. If women would unite and buy up some of the leading daily newspapers, they would not long be obliged to content themselves with the crumbs which fall from the editorial table. Some one of their number would now and then be installed as editor-in-chief. And so throughout all the departments of industry. A woman may be an expert in canning fruit or making pickles; but she finds her utmost endeavors to produce a good article at a low price surpassed by some large manufacturer. The small profit she may make upon her few dozen or hundred cans of fruit seems quite contemptible; but the same profit upon the many thousand cases of the manufacturer, assumes respectable proportions.

Another woman of intelligence and refinement may have a taste and aptitude for cooking. From many considerations she will not enter a private kitchen. But as *chef de cuisine* of a co-operative cook-house her genius would find ample room for expansion. The isolation of agricultural life makes it peculiarly unsuitable for women living alone, but with a combination of

capital and skill, what untold sources of wealth are waiting development in this direction. In addition to the production of the great staples of grain, there are the dairy, the poultry yard, the growing of trees, the analysis and assortment of soils, the discovery of hidden properties in plants, all promising rewards to intelligent effort. I doubt not that many a plant is cast out as a wayside weed to-day which will yet take its place as an important factor among commercial commodities. Just now I think of one such. It belongs to the family (*Solanacea*) which has given us the potato and the tomato. This little plant, known in botany as *Physallis viscosa*, I am persuaded can yet be coaxed into yielding a delicious fruit. And this is but one of a thousand which may be made to serve purposes of use and ornament.

The growing taste for flowers everywhere visible, makes floriculture an important industry. But here, as elsewhere, training and capital are necessary to make it profitable. These are the ever-present obstacles casting their shadows on the most hopeful undertakings. But I believe our countrywomen will yet rise to a solution of this difficulty. We are on the threshold of a new era involving many changes. Beneficent changes they will doubtless prove in the end. They bring to the surface many questions; not the least important of which are those which relate to our daily bread. The whole field of remunerative labor is opened up anew. Upon this field woman now enters, not as the competitor of man, but as his co-worker. Together they will yet evolve from natural and spiritual forces a beauty, order, and harmony of which we have scarcely begun to conceive. In the past, it is true the whole creation has groaned and travailed in pain together; but with a wise adjustment of the burdens of life they will cease to be burdens. They will become pleasant duties, to be taken up and discharged with alacrity and joy.

ADDRESS BY COL. WM. B. SLAUGHTER.

(Delivered on the Fair Grounds in the village of Darlington.)

Mr. President and Gentlemen Farmers: — I have been invited to address you on the present occasion. Nothing has been said on the subject of the address, and I have been somewhat at a loss to select one best suited to my capacity, and to your taste. Politics is the popular theme; but it is one for which I have no taste, and of which I have very little knowledge. Politics leads to demagogism, which I thoroughly despise. I use the term politics in the common acceptation of the term, not in the higher and purer sense, which implies a knowledge of the science or policies of government; subjects which have occupied the minds of the greatest thinkers in every age. I had special reference to the arts of the intriguers, the meddlers, the busy-bodies, who are ever ready to attend to everybody's business for a fee, whose maxim is "that the end justifies the means." This class of politicians are rarely found among the farmers, whose honesty, industry, prudence and economy are at war with their whole system. The farmer class constitutes the surest basis of all good government. They combine in a higher degree the elements of all great character, than any other class, to wit: honesty of purpose, practical common sense, self-knowledge and self government. While they are honorably and profitably occupied, they have leisure for thought, and thought is the source of all true greatness.

I presume the subject of farming would be most interesting to you, as it is your occupation and means of living. I understand there are two kinds of farming, book farming and plow and hoe farming. I never studied book farming, and therefore cannot give you the various theories in regard to the seeds suited to the climate, soil and time of planting; the mode of cultivating the land, whether by deep or shallow plowing; whether it should be done in the fall or spring, and whether the other thousand things in and about a farm should be done in this way or that. I have tried farming with the hoe and the plow, in three different states, and failed in all. First, by losing the crops by droughts, floods, bugs, and general bad management; and, secondly, by running in debt and

mortgaging the farm, and by being sold out under a foreclosure. I know of but one mode by which I can teach you on the subject of farming, and that is by giving you a minute detail of all the particulars of my system, and then advise you to adopt the opposite in every particular. There is a right way and a wrong way; if mine was all wrong, the opposite must be all right.

Although I am not a model farmer, either in theory or in practice, I can point you to one of whom you have all heard more or less, and whom if you will imitate in that particular as well as in many others, you will be better citizens and better men. None of you have ever seen the farmer to whom I allude, yet you honor his name, and venerate his memory. He is generally called the father of his country, but his family name is George Washington. Yet to this honest farmer we are indebted for our independence, for our freedom, for our civilization; all hail to George Washington, hero, patriot, sage and farmer.

"Lordlings may flourish and may fade,
A breath can make them, as a breath has made;
But the honest farmers, their country's pride,
When once destroyed, can never be supplied."

TOBACCO GROWERS' CONVENTION.

EDGERTON, WIS., *March* 24, 1880.

Pursuant to call, the tobacco growers of Wisconsin met at Union Hall, in Edgerton, March 24, 1880, at 1 o'clock P. M.

Hon. S. L. Lord was chosen chairman, and G. H. Rumrill secretary.

On motion of W. H. Tripp, a committee of five, on organization, was appointed by the chair, as follows: W. H. Tripp, chairman; R. T. Powell, E. R. Squires, W. S. Follansbee and Geo. Coon.

REPORT OF COMMITTEE.

The committee appointed by the chair for the purpose of organizing a tobacco growers' association, to be called and known as "The Wisconsin Tobacco Growers' Association," to be officered

as follows: a president, four vice-presidents, a recording secretary, corresponding secretary, and treasurer.

We also recommend the above officers be this day elected, who shall be authorized to prepare and present a constitution and by-laws for the governing of the same, and present them to a meeting of said association for their approval; said meeting to be called as soon as convenient.

W. H. TRIPP, *Chairman.*

On motion, the report of the committee was accepted and adopted.

On motion, the following officers were elected:

President—S. L. Lord.

Vice Presidents—R. T. Powell, T. J. Atwood, I. Phillips, J. D. Whittet.

Recording Secretary—E. R. Squires.

Corresponding Secretary—G. H. Rumrill.

Treasurer—Henry Marsden.

On motion, the association adjourned until March 31, 1880, at 2 o'clock P. M., at Union Hall.

S. L. LORD, *Chairman.*

G. H. RUMRILL, *Secretary.*

SPECIAL SESSION.

EDGERTON, Wis., *March* 31—2 P. M.

The association met in special session pursuant to adjournment, and was called to order by the president, Hon. S. L. Lord in the chair.

The minutes of the previous meeting were read by the secretary, who then read the report of the standing committee on constitution and by-laws. The report was accepted, and on motion of T. J. Atwood, the meeting proceeded to vote upon the adoption of the constitution and by-laws, by sections and articles. The articles were voted upon separately and adopted. Article III, providing an annual membership fee of one dollar, and for life memberships five dollars.

On motion, the first Thursday after the first day of January in

each year, was fixed as the time for holding the annual meetings of the association, for the election of officers, general discussions, exhibition of tobacco, etc.

On motion, "Jefferson's Manual" was adopted as a guide for meetings of the association.

Gen. Geo. E. Bryant, secretary of the State Agricultual Society, then said:

Tobacco is the parent of American slavery. To cultivate it, the curly-headed, white-eyed, black-skinned men of Africa were brought to the shores of the newly discovered America, as early as 1620, by an enterprising Dutchman at Jamestown, Va., that the good old Virginia leaf might be planted, hilled, transplanted, wormed, hoed, ploughed, topped, suckered, cut, strung, stripped and cased with ease and profit.

Our fathers planted the seeds of that peculiar institution which grew and flourished like unto its propagator, a healthy tobacco plant upon virgin soil, until it spread across the continent, and well nigh destroyed the greatest republic the world ever saw. Bad as was the slavery of the black man, the slavery of the snuffing, smoking, chewing black and white men and women to this profitable to be grown sun plant of America, is infinitely worse.

Tobacco is an American institution. In 1492, when Columbus discovered America, he found the natives using tobacco. So in Virginia, in 1585, the natives smoked it in clay pipes, just as white men do in 1880. James I, of England, called it a damning and wicked practice, but his subjects went on raising, selling, smoking and chewing, as mankind will probably do to the end of time.

Tobacco takes its name from Tabaco, a place in Yucatan. It has no botanical meaning; it is historically an American production, and was unknown to the people of Europe previous to the discovery of America. The noble red man used it as a means of producing intoxication, the same as his white brothers used the "water of life," obtained by distilling, fermenting, infusion of barley, rye, wheat, oats, and so forth.

The chemical composition of the plant is very remarkable, and worthy of the study of present growers. Nicotine, to which all

the ill effects of tobacco are due, is a deadly poison. The name came from John Nicot, a French embassador, who introduced the plant into Europe. It also contains acids, resins, and volatile salts. Slaves were imported to increase its production, which they did, to the ruin of the soil. As a farm product, it has destroyed the value of more land than all other crops put together.

The strength of tobacco is determined by the quantity of nicotine; the flavor by the oils and resins. These cost nothing, as they come from the air; but the beautiful white ash that is dropped from your burning cigar is made up from your farm capital, and can never be replaced; and it is because the proportion of ash is so great, that the crop is so exhaustive. The roots give seven per cent., the stems sixteen, the leaves twenty to twenty-five per cent. of ash. As the leaves are the great bulk of the crop, the taking from the soil is correspondingly great. One thousand pounds of tobacco takes on an average two hundred pounds of ash; two thousand pounds of tobacco, a good crop for an acre, would take four hundred pounds of ash. A crop of wheat at thirty bushels to the acre would take less than forty pounds of ash from your farm. So, you see, eleven crops of wheat is no more exhaustive than one crop of tobacco; and if Wisconsin has been wheated to death, there is some danger, I submit, of this fairest of lands in the valley of the Rock becoming, like some of the soil in old Virginia, too poor to raise white beans. Take any tobacco district, and, starting at nothing, the production mounts rapidly to a maximum, turns the corner, and never regains its higher figure. Land can only bear maximum crops of tobacco a short time, and when the decline comes, it comes rapidly.

The experience of the lesson should teach you to put back on the land all you can of the kind you take off; hence your tobacco stems, and all the leavings about your sheds, should be put back on the land from whence it came. Use all the manure you can get! The best animal manure for tobacco is that of sheep. Use guano, at the rate of 400 lbs. per acre, two or three bushels of salt, and be sure and put on the land the accumulation from your stoves, as the ash taken from your soil and carried off in the leaves, contains a great amount of potash salts.

While tobacco has become a leading industry in southern Wisconsin, and will rapidly become a greater, remember that while an individual *may*, is quite sure, to grow rich from raising it, a nation never will; for the one man's gain is obtained at the cost of his children having taken from them the means of future gain, *by robbing the soil;* and you are sending off in smoke the fertility of this garden of the world. Remember that there is no other valley of the Rock for your grandsons to possess. Hence I say, raise only the best; handle with care; keep sheep; alternate between clover, roots and tobacco; get all the wood ashes you can, and pray God to forgive you for raising the filthy weed that sends yearly to untimely graves more human beings than does Beer, Wine, Whisk y & Co. combined. If you *will* continue in the business, cultivate successfully, remembering the better the crop the greater the profit.

On motion of Mr. Henry Marsden, Gen. Bryant was made an honorary member of the association.

On motion, it was decided that the next regular meeting of the association be held at Union Hall, in Edgerton, on the 25th day of May next, at 10 o'clock A. M.

The executive committee appointed a special meeting for April 14th, at 1 o'clock P. M., sharp, for discussion and the transaction of business.

Meeting adjourned.

CONSTITUTION.

Art. I. The name of this organization shall be "The Wisconsin Tobacco Growers' Association."

Art. II. Its object shall be the advancement of the science of tobacco culture, and its preparation for market.

Art. III. Its members shall consist of annual members, paying an annual fee of one dollar; of *life* members, paying a fee of five dollars at one time; of *honorary* life members, who shall be distinguished for merit in tobacco culture or kindred sciences, or who shall confer any particular benefit upon the association; and *honorary annual* members, who may, by vote, be invited to participate in the proceedings of the society, but who shall not have the privilege of a ballot.

Art. IV. Its officers shall consist of a president, four vice-presidents, recording secretary, corresponding secretary, treasurer, and an executive board consisting of the foregoing officers, and such additional members as the

association may elect; five of whom shall constitute a quorum at any of its meetings. All officers shall be elected by ballot, and shall hold their office for one year thereafter, and until their successors are chosen, provided that additional members to the executive board may be elected at any regular meeting.

ART. V. The association shall hold annual meetings, commencing on the first Thursday after the first day of January of each year, for the election of officers, for discussion, and for the exhibition of samples of growing or cured tobacco, and such other meetings for discussion and exhibition as the executive committee may direct.

ART. VI. This constitution, with the accompanying by-laws, may be amended at any regular meeting, by a two-thirds vote of the members present.

BY-LAWS.

ART. I. The president shall preside at the meetings, and with the advice of the recording secretary, call all meetings of the association, and have a general supervision of the affairs of the society, in conjunction with the executive committee. He shall sign all orders upon the treasury for moneys voted by the association.

ART. II. The vice presidents shall act in the absence or disability of the president, and perform the duties of the chief officer.

ART. III. The recording secretary shall record the proceedings of the association, preserve all books and papers belonging to the same, and superintend, with the advice of the president, the publication of its reports. He shall also present a detailed report of the affairs of the association at its annual meeting, and countersign all orders drawn upon the treasury. He shall co-operate with the corresponding secretary in an annual report to the governor of the state.

ART. IV. It shall be the duty of the corresponding secretary, with the advice of the president, to answer communications addressed to the association, and, as far as possible, collect reports from all parts of the Wisconsin tobacco district, as well as other portions of the country, engaged in the growth of Seed Leaf tobacco. He shall, on or before the first of January of each year, make, in co-operation with the recording secretary, an annual report to the governor of this state, of the transactions of the association, together with the quality and probable amount of the tobacco crop raised during the year.

ART. V. The treasurer shall keep an account of all moneys belonging to the association, and disburse the same upon the written order of the president, countersigned by the recording secretary, and shall make an annual report of receipts and disbursements, and furnish the recording secretary with a copy of the same, on or before the first day of the annual meeting. The treasurer elect shall, before entering upon the duties of his office, give good and sufficient bonds for the faithful performance of his duties, subject to the approval of the executive committee.

Art. VI. The executive board may, subject to the approval of the association, manage all its affairs, and fill vacancies in the board of officers; and three of their number, as designated by the president, shall constitute a finance committee.

Art. VII. It shall be the duty of the committee on finance to settle with the treasurer, and to examine and report upon all the bills or claims against the association, which may have been presented or referred to them.

Art. VIII. No bills or claims against this association shall be paid out of its treasury until they have been examined by the committee on finance, and an appropriation made for the same, by the votes of a majority at a regular meeting of the society.

Art. IX. This association shall have a seal, to be kept by the president or recording secretary.

OF THE ORDER OF BUSINESS.

Art. X. The following order of business shall be observed at all meetings of the executive committee:

1. Reading the minutes of the preceding meeting.
2. Reading the minutes and reports of the standing committee.
3. Reading the minutes and reports of the finance committee.
4. Report of the auditing committee.
5. Report from special committees.
6. Communications from the secretary.
7. Communications from members of the committees.
8. Unfinished business.
9. Miscellaneous business.

This order of business may be suspended, however, at any time, by vote of a majority of the members present.

AN HISTORICAL ADDRESS BEFORE THE WISCONSIN PIONEER ASSOCIATION.

By Hon. GEORGE B. SMITH.

Wisconsin has had an eventful history. It is claimed that, as early as 1634, only fourteen years later than the landing of the Pilgrims on Plymouth Rock, and long before the settlement of William Penn at Philadelphia, John Nicolet, a daring Frenchman, had visited what is now Green Bay, with a view to smoke the pipe of peace with the Winnebagoes. It is certain, that as early as 1665, the Jesuit missionaries commenced at La Pointe, on Lake Superior, their work of Christianizing the Indians. It is also certain that in 1669, their missionary labors began in the vicinity

of Green Bay. Wisconsin was also the great highway over which the first explorers passed, in search of the Mississippi river and the unknown sea. In the year 1673, Louis Joliet, with Father Marquette, passed up the Fox river from Green Bay, and down the Wisconsin river, in search of the Father of Waters. On the 17th of June of that year, they discovered it, at the mouth of the Wisconsin river, near where now stands Prairie du Chien.

These men, especially Father Marquette and others, came to this wild and lonely region mainly to bring religion and civilization to the Indians; incidentally they came on a voyage of discovery. There was another, and in many respects a greater than these, who came to explore in the interest of conquest and commerce. I refer to La Salle, who, as early as 1680, with his little party and his faithful and famous friend, Tonty, discovered the Mississippi river still further south, in what was then called the Illinois country, now the state of Illinois. Afterwards, he followed the river to the Gulf of Mexico. This man of wonderful enterprise, wondrous foresight and iron energy, even then dreamed that the valley of the Mississippi might, in his time, become what it is now — the garden and glory of the world. Still later, and all the way down to the time when it was finally owned and occupied by the United States, Wisconsin continued to have a remarkable and eventful history, until it was finally organized into a separate territory in 1836, when the people then here were invested with the great American boon of self-government.

From 1671 to 1763, a period of 92 years, Wisconsin was under the government of France; from 1763 to 1796, a period of 33 years, it was governed by Great Britain, although the latter, in 1783, had ceded her claim to the United States. From 1796 to 1800, it was under the government of the United States as part of the territory northwest of the river Ohio; for nine years, from 1800 to 1809, it was under the territorial government of Indiana; from 1809 to 1818, it was governed by the territory of Illinois, and from 1818 to 1836, it was under the territorial government of Michigan. Thus it will be seen that for a period of 165 years, the territory which now comprises this magnificent state was the mere foot-ball of nations, states and territories.

Since Wisconsin came under the government of Illinois territory, it has had a somewhat curious, as it had before a remarkable, history. In the year 1784, on the 1st of March of that year, and in less than one hundred days after the evacuation of this country by the British army, Thomas Jefferson reported to the Continental Congress, with the concurrence of his committee — a majority being from the southern states — his celebrated ordinance for the government of all the territory ceded or to be ceded by individual states to the United States, * * * section 5 of which provided: "That after the year 1800 of the Christian era, *there should be neither slavery nor involuntary servitude in any of the said states, otherwise than in the punishment of crimes, whereof the party shall have been duly convicted to have been personally guilty.*" * * * Sixteen members voted for and seven against this ordinance, on a test vote, but the requisite majority of states not voting for the ordinance, it failed. It will be observed that this proposed ordinance embraced all of the states thereafter forever to be admitted into what was then denominated the confederacy. Afterwards, on the 13th of July, 1787, two months before the adoption of the constitution, and something like a year before its ratification by nine states — the requisite number to make it the constitution of the United States — that celebrated ordinance "for the government of the territory of the United States northwest of the river Ohio," introduced by Nathan Dane, of Massachusetts, was passed by the Continental Congress. Article 6 of this ordinance is in substance exactly like article 5 in the one introduced by Mr. Jefferson, which I have already quoted, with a proviso in relation to persons owing service who should escape from any of the original states. By this ordinance, all officers of the territories had to be appointed by congress. After the adoption of the constitution of the United States, and on the 17th of August, 1789, congress amended this ordinance by providing that all such officers should be appointed by the president of the United States; in all other respects the ordinance of 1787 stood as the organic and paramount law for the government of the territory of the United States northwest of the river Ohio.

This ordinance of 1787, so familiar to all of the early settlers of

Wisconsin, was the great charter of our rights and the limit of our powers, as it had been for all the territories which had, before that time, been admitted into the Union out of the northwest territory, or of the territory northwest of the river Ohio. Except the Constitution of the United States, this ordinance was unquestionably the grandest and most perfect written charter for the protection of the rights and liberties of a people that had ever been devised. In some respects it was more explicit and more perfect than the constitution itself. In view of subsequent events, it is instructive to observe the wisdom and forethought of the following provision of this ordinance: "Article 4. The said territory and the states which may be formed therein shall forever remain a part of the confederacy of the United States of America, subject to the articles of confederation and such alterations therein as shall be constitutionally made, and to all the acts and ordinances of the United States in congress assembled conformable thereto." If this or a like expression had been inserted into the constitution of the United States, we should never have heard of the right of constitutional and legal secession. Such a doctrine could never have found advocates or followers, and it may be, nay, it is almost certain, that it would have saved the people of this country from that cruel and awful war, with all its terrible consequences, which must abide with our people for generations to come, possibly forever.

It is indisputable that many of the American statesmen, north and south, did believe in the right of secession, and the question was considerably discussed even at an early day; finally, and unhappily, too, many were willing to peril all in support of this opinion. Had this plain and emphatic declaration been adopted, "that all the states that adopt and accept this constitution, shall forever remain a part of the United States subject to this constitution," none would have been found bold enough and bad enough to propose the dissolution and destruction of the Union; for that would have been treason without a parallel, and without even the poor excuse of an honest conviction.

But I have wandered somewhat from my subject, and from the plan of this address. I now return, hoping that my digression may not, after all, be unprofitable. The ordinance of 1787, arti-

cle five, provided that there should be formed in the said territory not less than three nor more than five states, * * * with this proviso: "That if congress shall hereafter find it expedient, they shall have authority to form one or two states in that part of said territory *which lies north of an east and west line drawn through the southerly bend or extreme of Lake Michigan.*" Thus, the north line of the territory of Illinois and the south boundary of Michigan, and what is now Wisconsin, was fixed on a line "drawn through the southerly bend or extreme of Lake Michigan." By the express terms of the ordinance, it was "forever to remain unalterable, unless by common consent." Such continued to be the north line of the territory of Illinois until 1818, when that territory applied for admission into the Union. She had formed a state constitution, and applied to congress for admission into the Union on an equal footing with the original states. Neither the legislature of the territory of Illinois, nor the convention that framed the constitution, had suggested any change in the boundaries of the state. The original bill introduced into congress by Judge Pope, the delegate from Illinois, did not provide for any change of boundary; but, while the bill was pending, Judge Pope, solely on his own responsibility, proposed an amendment to it as follows: "by striking out the lines defining the boundaries of the new state, and inserting the following:" "Beginning at the mouth of the Wabash river; thence up the same, and with the line of Indiana to the northwest corner of said state to the middle of Lake Michigan; thence north along the middle of said lake to north latitude 42 degrees, 30 minutes; thence west to the middle of the Mississippi river to its confluence with the Ohio river; and thence up the latter river along the northwestern shore to the beginning." This amendment was adopted without division and without opposition, and then the mischief was done. (See 2d vol. Annals of Congress for the year 1818, p. 1677.)

Congress, in thus establishing the boundaries of that state, extended its north line nearly sixty miles north of the line established by the ordinance of 1787, and this was done without the consent of the inhabitants then resident within what afterwards became Wisconsin; indeed, it was done at a time when there were

but few here to object, and it was done in such haste that these few had no opportunity to object. The part thus taken from what would otherwise have been a part of the present Wisconsin, embraces the fourteen northern counties of Illinois, the richest and most populous part of that state, including, of course, the city of Chicago.

The ordinance of 1787, although made unalterable, was changed in this particular, but time and circumstance have sanctioned the change, and it is now, indeed, unalterable. Gov. James D. Doty, who was always mindful of the honor and interests of Wisconsin, did, as soon as he had an opportunity to do so, manfully and ably protest against this manifest injustice and wrong. In the first constitutional convention for this state, Gov. Doty brought this subject to the attention of the convention in a very able report, reviewing all the circumstances connected with it, and finally proposed that the whole subject be referred to the Supreme Court of the United States for a final adjudication and adjustment. (See his report, and also a very able and interesting report on the same subject made by the Hon. D. A. J. Upham to the territorial legislature; journal of first constitutional convention, from page 136 to 146.)

I have referred to this subject solely for the purpose of calling your attention to the circumstances and the reasons which induced this change of boundary. It was done sixty-one years ago, and only thirty-one years after the adoption of the Constitution of the United States, at a period when, now, it would hardly be thought that there was any threatened danger of a dissolution of the Union; and yet we see that the solemn compact of the ordinance of 1787 was disregarded, and what is more, Wisconsin deprived of a very important and immensely valuable part of its territory, in order that Illinois, just then to be admitted as a state, might be more firmly bound to the Union by identifying her, through the great lakes, with the "Eastern States and Northern Interests." Wisconsin was thus early sacrificed and dismembered in the interest of the Union and of peace.

Now for the reasons assigned. Mr. Pope said in support of his amendment (see same page, 1677): "The object of this amend-

ment was to gain for the proposed state a coast on Lake Michigan. This would afford additional security to the perpetuity of the Union, inasmuch as the states would thereby be connected with the states of Indiana, Ohio, Pennsylvania, and New York, through the lakes." * * * This is but a meager report of what was said by Judge Pope in advocating his amendment, but the point is plainly brought out in the little we have here reported. Gov. Ford, in his admirable history of Illinois, in speaking of this subject, says at page 22: "But there were other and more weighty reasons for the change of this boundary, which were ably and successfully urged by Judge Pope upon the attention of congress. It was known, he said, that in all confederate republics there was danger of dissolution. The great valley of the Mississippi was filling up with a numerous people; the original confederacy had already advanced westward a thousand miles across the chain of mountains skirting the Atlantic; the adjoining states in the western country were watered by rivers running from every point of the compass, converging to a focus at the confluence of the Ohio and Mississippi at Cairo. The waters of the Ohio, Cumberland and Tennessee rivers carried much of the commerce of Alabama and Tennessee, all of Kentucky, a considerable portion of that of Virginia, Pennsylvania and New York, and the greater portion of the commerce of Ohio and Indiana down by the point at Cairo (situated in the extreme south of Illinois), where it would be met by the commerce to and from the lower Mississippi, with all the states and territories to be formed in the immense country on the Missouri and extending to the head waters of the Mississippi. Illinois, he said, had a coast of 150 miles on the Ohio river and nearly as much on the Wabash; the Mississippi was its western boundary for the whole length of the state; the commerce of all the western country was to pass by its shores, and would necessarily come to a focus at the mouth of the Ohio at a point within the state and within the control of Illinois, if, the Union being dissolved, she should see proper to control it." Mr. Ford says: "It was foreseen that none of the great states in the west could venture to aid in dissolving the Union, without cultivating a state situated in such a central and commanding position." Again, he

says: "Illinois was certain to be a great state with any boundaries which the government could give. Its great extent of territory, its unrivaled fertility of soil, * * * * together with its commanding position, would in course of time give the new state a very controlling influence with her sister states upon the western rivers, *either in sustaining the Federal Union as it is, or in dissolving it and establishing new governments. If left entirely upon the waters of the great rivers, it was plain that in case of threatened disruption, the interest of the new state would be to join a southern and western confederacy. But if a large portion of it could be made dependent upon the commerce and navigation of the great northern lakes, connected as they were with the eastern states, a rival interest would be created to check the wish for a western and southern confederacy.*" "It thereupon," he says, "became the duty of the national government not only to make Illinois strong, but to raise an interest inclining and binding her to the eastern and northern portions of the Union." (See also Davidson & Stuve's History of Illinois from 1673 to 1873, pages 295 and 296.)

We have it here plainly avowed that Illinois ran so far into the south, and was so situated on the great rivers running in that direction, that something must be done to "*balance her interest and incline her to the north.*" For this reason and for this purpose, the congress of the United States, in utter disregard of the solemn compact of the ordinance of 1787, gave to Illinois a port on Lake Michigan and a large strip of splendid territory which justly belongs to Wisconsin, and thus, it may be said, she was saved to the north and to the Union. It may be that this country has been benefited and prospered by this act of bad faith, not to say robbery. If so, Wisconsin has made the sacrifice, and she is fairly entitled to the honor of all the good that followed the act.

What Wisconsin would have been to-day, had her original boundary remained, is a question not profitable now to speculate upon, as it is by no means pleasant to reflect on. But this is not all. Wisconsin was destined to suffer and sacrifice still more in the interest of peace, if not in the interest of the Union. After Michigan and Ohio had quarreled and fairly come to blows over their boundaries, the matter was finally settled and the parties

appeased if not satisfied, by congress giving to Michigan as a compensation in part for the strip of her territory given to Ohio, that portion of country on Lake Superior between the straits of Mackinaw and Montreal river, directly north of us, and which by every consideration just belongs to the state of Wisconsin. It has no connection whatever with that state; and the inhabitants of that section, especially in winter, have no other way to reach their capital except to pass through the states of Wisconsin, Illinois and Indiana; — but the interest of peace required that Wisconsin should be again sacrified; it was sacrificed, and we have submitted.

Again, when the Webster treaty was made in 1842 with Great Britain, more of our territory lying on the extreme north was taken from us and given to England in the interest of peace, and again we submitted without a murmur.

Notwithstanding we have been cut and carved at both extremities, north and south, we still have a territory twice as large as the great state of New York, rich beyond all calculations in everything that conspires and combines to make a prosperous and luxurious abiding place for man.

In the year 1783, settlements first began at Prairie du Chien, Wisconsin, and afterwards, perhaps as early as 1800 or 1805, some few settlements were made in the southwestern part of the state, by persons attracted by the lead mines of that section.

In 1820, Lewis Cass, then governor of Michigan, to which Wisconsin was attached, came to Wisconsin with a distinguished party of gentlemen, among whom was Henry R. Schoolcraft, who published in 1821 a "narrative journal" replete with valuable information relative to this country. Wisconsin, we learn from this journal, was then little more than the abode of a few Indian traders scattered here and there throughout the territory.

This expedition and this "narrative journal" brought this country somewhat into notice. Of this expedition, James D. Doty was secretary; and from that time to the time of his death, in Utah territory, of which he was at the time governor, he was identified with every period and every page of our history. Indeed, a full and faithful life of James D. Doty, would be a history of Wisconsin from 1820 to 1869.

But it is said that the Sauk or Black Hawk war of 1832 did more than anything else to turn the attention of emigrants and others to this country. It brought it into general notice throughout the whole United States and abroad. From this time it began to settle rapidly, so that in 1836 enough people from the states settled here to justify its organization into a territorial government, which was done by act of congress, approved April 20, 1836. On the 3d of July following, the people then in Wisconsin commenced to govern themselves. It is curious to observe how easily and effectually the people here were invested with governmental power, which was to abide with them and their successors forever, unless they should voluntarily give up the right of self-government. Section twelve of the act of congress organizing the territory provided as follows: "That the inhabitants of said territory shall be entitled to and enjoy, all and singular, the rights, privileges and advantages granted and secured to the people of the territory of the United States, northwest of the river Ohio, by the articles of the compact contained in the ordinance for the government of the said territory, passed on the 13th day of July, 1787, * * * and the existing laws of the territory of Michigan shall be extended over said territory, * * * to be altered, modified or repealed by the governor and legislature of said territory of Wisconsin. * * * And further, the laws of the United States are hereby extended over and shall be in force in said territory, so far as the same or any provision thereof shall be applicable."

Under this act, the people of Wisconsin were invested with the power of self-government, and now it was that they set up for themselves. From that day to this, they and we have been responsible for what has been done. I come now to speak especially to those of our fathers who organized the government and who made a state.

From 1836 to 1848, when Wisconsin was admitted into the Union as one of the states, entitled to all of the privileges of the original states under the constitution, a body of laws had been framed and a system of government adopted, so wise, so liberal, and so just to every class and every interest, that there was little left for the state to do but to adopt and fit the laws and the sys-

tem to the changed condition of affairs. It is sad to reflect that by far the greatest number of those to whom we are indebted for the priceless blessing of a good beginning have passed away. It is pleasant, however, to contemplate that these men live and always will live in the grateful memories of the whole people of this great and growing commonwealth.

Some few of them, however, are still here, and yet fewer are with us to-day. It ought to be, and it will be, I am sure, gratifying to them to know that we appreciate what they have done for the state, and for the people of the state, in thus early organizing and establishing a system of equal and just laws; — laws which have endured so long, and are likely to endure forever. All honor to the living and the dead who gave and secured to us this wonderful foundation for our prosperity and success.

Wisconsin was especially fortunate in the appointment of its first territorial officers, and especially in the appointment of Henry Dodge as its first governor; too many of the officers of territories have been men from other states, appointed to administer the affairs of a people they did not know, and to govern where they had no interest, and little knowledge of the capacity and resources of the country, and the wants and wishes of the people. This was not the case in Wisconsin. Gov. Dodge was at the time of his appointment, and had been for a long time, a resident of Wisconsin, identified with the territory and its people. He was a man who had won honorable fame in the service of his country, and he fairly represented every interest in the new territory. It was therefore eminently fit that he should be its first governor. Following him in the changing phases of politics came James D. Doty as governor. He, too, had been distinguished as a judge and a citizen; and he, too, was and had been, from still an earlier day, identified with Wisconsin. His interests, like those of Gov. Dodge, were here in Wisconsin and nowhere else. The same might be said of most of the other territorial officers, but the governor was the leading officer, who, together with the people with whom and whose interests he was identified, gave form and shape to all things. To this may fairly be attributed the early prosperity and permanent welfare of Wisconsin. N. P. Talmage, of New

York, was governor of the territory from June 21, 1844, to April 8, 1845; with the exception of this short period, Dodge and Doty held the office during the entire period of territorial government. First, Gov. Dodge held the office from April 30, 1836, to September 30, 1841; Gov. Doty from September 30, 1841, to June 21, 1844; N. P. Talmage from June 21, 1844, to April 8, 1845; Gov. Dodge again from that time until the state was admitted into the Union in 1848, May 29.

Again, the people who came here, came to make it their home, and few who came ever went away. Therefore, when they were called upon to act in public capacities, to make and administer the laws, they made laws for themselves, and in administering them they did "unto others as they would have others do unto them." In short, Wisconsin was then, as it is now, one great family of good fellowship. It could not have been so, if bad or unwise men had been here in the beginning, and it will take a good many bad men a good while to change its character in this respect. Rich as Wisconsin is in climate and fertility of soil, in rivers, lakes and resources of every description, it is still richer in the volume and body of its laws and in the intelligence, enterprise and character of its population. It has been here, as it has ever been everywhere among men who have founded a nation or a state, some among them have attained an enduring fame, a fame equal to if not surpassing any who come after them. It would be a real pleasure to mention some of the many men of the territory of Wisconsin who contributed to make it what we have faintly described it. All of them could not be mentioned within the limits of this address, and when all are so deserving, it would be invidious to mention a few.

I have thus far named but two, Henry Dodge and James D. Doty. I have mentioned them because they occupied commanding positions, where they were necessarily identified with every interest, and in this sense they were the two great leaders of the whole. There was rivalry between these two remarkable men, and to each was attached a large following of friends, each vieing with the other to see who could best advance the interests of the young and growing territory.

There was enough for them all to do. It is impossible for us now rightly to appreciate what these early settlers had to do. The wonder is that they did so much, and did it so well in so short a time. In some respects, however, Wisconsin was more fortunately circumstanced than any of the other new territories, or, indeed, of the older states. The character of the country was favorable to rapid settlement and quick development. The Sauk or Black Hawk war, which we have seen gave a quickening stimulus to settlement of this territory, had subdued the Indians into a sort of respect for the rights of white men; for this and other reasons, the early settlers were exempt from the fears and dangers which had so retarded the early settlements elsewhere. There was but little danger apprehended, and no acts of savage violence to speak of, suffered by the earlier settler. They were ordinarily safe to settle in any section of the territory, so that at an early day every section of the country was to some extent occupied; means of communication had at once to be provided, roads were to be made, and what was far more difficult and expensive, bridges were to be built over the numerous streams, large and small, that thread our state in every direction. Yet all this was done; it was done well and done quickly. The foundation was very early laid for all of the public institutions necessary and incident to a well-ordered government.

The country settled rapidly with emigrants from the states and from the old world, so that within a period of ten years from the organization of the territory, it had the requisite population to entitle it to be admitted as a state into the Union.

Under the territorial system of government, the people were in some sense subordinated to the congress of the United States. Although their career had been one of unparalleled success, it is indisputable that by this time they had become restive and uneasy under the seeming vassalage of the situation, so that everybody expressed the wish to form for themselves a constitution and be admitted into the Union as an independent state, or, as we expressed it at that time, a "sovereign, independent state."

The legislature, therefore, heeding this general public sentiment, passed a law on the 31st of January, 1846, providing for a conven-

tion and for the election of delegates to form a constitution. Delegates were elected, and on the 5th day of October of the same year, they assembled at the Capitol in Madison, and proceeded at once to the discharge of that duty. This brings us to a very remarkable period in the history of Wisconsin, and I confess that I feel utterly incompetent to deal properly with the subject at this point. It is proper to say, however, that this convention of 1846 was composed of some of the oldest settlers of the territory, and some of the ablest men that have ever taken part in the public affairs of Wisconsin. Some of them had been greatly and justly distinguished for their devotion to the interests of the territory, and many of the same men have been no less distinguished since then, for their services and devotion to the welfare of the state; and I may properly add, that the wisdom of the people of that time in making choice of the delegates to this convention, has since been fully justified by the confidence that has been continued to them by the people of the state down to this day. It would not be appropriate to the occasion, and if it was so, time would not permit me even briefly to allude to the subsequent history of these men. This duty has been ably performed by the secretaries of this convention, David Atwood and Horace A. Tenney, who were both reporters in the convention of 1846, and also in the convention of 1847–8, which framed the constitution that was finally ratified by the people — our present constitution under which Wisconsin was admitted into the Union. Their report, which will always be a valuable contribution to the history of Wisconsin, embraces a brief biographical sketch of each member of both conventions. Some have been members of congress, one a cabinet officer and minister abroad; one a justice of the supreme court, and two, one of each convention, have been chief justices of the state; several have held state offices and many have been members of the legislature. In many ways they have enjoyed the confidence and been honored by the people of the state. Many of our associates who met with us on that bright October day, away back in 1846, now nearly thirty-three years ago, and who labored with us through the sixty-two days that we were engaged in trying to make a constitution for the protection

of the rights and liberties of the people of Wisconsin — one that would meet the approval of those who had delegated us to perform that duty — have passed to an honorable grave, and I am proud to say that I do not know of one, either living or dead, of either convention, who had dishonored the good name he deservedly won.

The constitution framed in 1846 not being ratified, another convention was provided for, which met at the Capital on the 15th of December, 1847, and framed the present constitution, which was ratified by the people. Before alluding to the present constitution, or more especially to the convention that framed it, it will be proper that I should briefly refer to the causes and to the arguments that led to the defeat of the one framed in 1846. After this lapse of time, and in view of the action of the second constitutional convention, and of the subsequent legislation of the state in reference to the matters forming the objections then urged against the constitution, it would be exceedingly difficult to make the people of this day understand why the first constitution was not ratified. Several reasons were urged in argument before the people, why it was that the convention did not make a proper constitution, or, rather, why they put into it the objectionable provisions, which were stated to be:

(1) The article in relation to the rights of married women.

(2) The article on exemptions.

(3) The bank article.

(4) The number of representatives in the legislature.

(5) The elective judiciary.

The article on married women was as follows: "All property, real and personal, of the wife, owned by her at the time of her marriage, and also that acquired by her after marriage, by gift, devise, descent, or otherwise than from her husband, shall be her separate property."

The article on exemption was as follows: "Forty acres of land * * * or the homestead, not exceeding forty acres, * * * which shall not exceed in value one thousand dollars, shall be exempt from execution or forced sale."

The article on banks prohibited banks of issue.

The legislature should not consist of less than 60 members, nor more than 125; and it was provided that the judiciary should be elective.

A distinguished opponent of the constitution said in a public speech at that time, that "these features of the constitution are not only bad of themselves, but they are still more objectionable when we reflect that they will produce other laws still worse. They are seeds of evil which will produce an hundred fold."

These and similar arguments finally resulted in rejecting the constitution. The article on the rights of married women, the exemption article, and the elective judiciary, were denounced in unmeasured terms as being ruinous to the peace, prosperity and happiness of the people forever.

The next convention framed a constitution leaving the "rights of married women" to be provided for by the legislature, and the legislature a few years afterwards adopted into a law substantially that which was provided for in the rejected constitution.

It also provided that the legislature should pass exemption laws of real and personal property; and soon after, the legislature made a liberal exemption of personal property and exempted forty acres of land, the homestead, or a quarter acre in a city or village, without reference to its value, whereas in the rejected constitution the value of such exemption was limited to one thousand dollars.

It fixed the number of members of the legislature at not less than fifty-two, nor more than one hundred — hardly difference enough to talk about — and the judiciary was made elective as in the rejected constitution. In respect to banks, that was so left that the subject of bank or no bank might be submitted to the people. Thus we find in the second constitution and in the legislation of the state soon after enacted, nearly every feature which had made our work unpopular, and there it has remained, the pride and glory of the state to this day. Although our work was rejected, it yet was in a great degree the foundation and guide for those who were subsequently charged with the duty of framing the constitution which we now have.

The second constitutional convention assembled in Madison on the 15th day of December, 1847, and closed its labors on the 1st

day of February, 1848. The result of its labors was the present constitution. That it was a good constitution is sufficiently attested by the fact that it has remained the organic and paramount law of the state for now more than thirty years, unchanged in any of its important and essential features, and we have seen that in many respects it is the exact counterpart of the one that had been rejected; that the subsequent legislation of the state has in many respects even advanced in the direction in what was called the radical, and for a time the most unpopular provisions of the rejected constitution.

This convention, like the first one, was composed of many of the earliest settlers of the territory, and many of them were the very ablest men in it. We have already noted that many of those, as well as those in the first convention, have risen to honorable distinction in the service of the state. After all, it was the work of these men of the second convention that was crowned with success, and thus they won the high and honorable distinction of being the founders of a state.

This state, as we have seen, has had a varied fortune and a singular history, but ever since its organization into a territory in 1836, it has advanced in rapid strides with uninterrupted and unparalleled prosperity to its present acknowledged high position among the states of the Union. All of its duties to the general government in every emergency have been honorably and faithfully performed. The rights of its citizens have been scrupulously protected by a just and equitable system of laws, and by a fair and able administration of justice.

The remarkable good fortune that has always attended our people is due in a great degree, I think, to the wisdom and singular unselfishness of those earlier settlers of the territory, who laid the foundation of a good government, broad and deep, upon which has been built within a period of little more than forty years a great commonwealth, embracing within its borders a million and a half of people as industrious, intelligent and prosperous as any people on the globe. It is no vain boast to say that Wisconsin is as fair a land as the sun shines on. It embraces within its limits every attribute and every facility as regards climate, fertility of

soil, and all that goes to make an independent and self-sustaining people. It is an empire within itself. Its geographical position is unrivalled. On the north we have the great inland sea, Lake Superior; on the east, along our whole border, we have Lake Michigan, second only to Lake Superior in extent; on our western boundary, we have the wonderful Mississippi; and generally the interior of the state is threaded with "a watery net-work of great utility;" many of the streams are navigable for boats — more are navigable for logs and lumber; and altogether they afford water power enough to run all the machinery in the world. The state is dotted all over with clear and beautiful lakes and with innumerable springs of healing waters, which already are attracting the afflicted from far and near. In many localities the earth is literally teeming with the richest of ores, lead, iron and copper, and our pineries are simply inexhaustible.

This is but a faint and feeble review of the great and wonderful natural resources of Wisconsin. It now remains for me, in conclusion, briefly to refer to what has been done to build upon and improve these manifold and remarkable facilities. I have already said that the early territorial settlers began and carried on the work of improvement with peculiar skill and industry; that they established a system of laws which were so admirably fitted to the wants and growing capacities of the country as to need but little change when we became a state. Since then the same wisdom, the same care for the welfare and prosperity of the people, has in general marked the legislation of the state.

The state has no debt to speak of, and yet our charitable and penal institutions will compare favorably with any in any of the states of the Union or with those of any country in the world, both in respect to the convenience and splendor of their construction and the skill and learning with which each institution is managed. A liberal school fund was originally provided for by congress, and the state has added largely to it, with which a system of education has been provided for the youth of Wisconsin, fully equal to any in the world. Colleges established by different religious denominations, have sprung up in different parts of the state, which, together with the State University, are furnishing to

the young men and women of the state every facility for a thorough and accomplished education. The University of Wisconsin, supported as it is by liberal and bountiful appropriations by the state, is fast becoming one of the leading institutions of learning in the United States; and I know of no reason why this institution may not in the near future be equal to any institution of learning in the world. Under the liberal patronage of the state, the sons and daughters of Wisconsin are, and are to be, forever hereafter, I hope, educated here free of expense. Thus, and in many ways I cannot mention, the people of Wisconsin have kept pace with the most advanced civilization. Everything has been done that could be done by enterprise, energy and industry to make Wisconsin what it pre-eminently is, one of the richest and most prosperous communities in the world. Added to our natural and unrivalled means of transportation throughout the state and abroad, by the water communications to which I have already referred, Wisconsin has her full share of railroad facilities. It would be a waste of time to attempt to enumerate the advantages of Wisconsin; it it sufficient to say that she has every advantage which a good government, a rich soil and a favored climate can give to a thrifty, industrious, intelligent people. All of these advantages have been grandly improved, until Wisconsin has become a great and prosperous commonwealth.

For all of these manifold blessings the people of the state are in great part indebted to you gentlemen who organized the territory and founded the state.

I hope these meetings may be continued from year to year, that they may increase in interest as the numbers entitled to be here diminish. Each recurring meeting, I am sure, will in many respects be sadder and sadder for those who come, until finally when the last of this noble band of pioneer patriots and public benefactors, enfeebled by age, shall come with trembling steps, and with conflicting feelings of pleasure and pain — pain that he sees no more the noble forms and familiar faces of those who helped to lay the foundation of this grand commonwealth; pleasure at the joyful greeting he will be sure to receive from the grateful people he so faithfully served. When this time comes,

as it surely will come, I bespeak for this survivor, whoever he may be, a reception and a welcome that shall forever make that day memorable in the history of Wisconsin.

FISH FARMING.

Progress of Pisciculture in Wisconsin and the United States — With much Historical Information about the Business — The operations of the different Nations.

Until a comparatively recent period, the rivers of Europe and of the United States, particularly the northern and eastern states, fairly swarmed with salmon, and the brooks and streams everywhere were alive with trout. The food, at once wholesome, appetizing and cheap, was within the reach of the poorest; but now, what was once one of the commonest and most easily attainable necessities of the poor has become an expensive luxury for the well-to-do and rich. Salmon and trout are the most costly fish in the market, and shad are smaller, scarcer and higher priced from year to year.

What has become of the fish, particularly the salmon and the trout? Why have salmon, once so cheap and plentiful, deserted the rivers of New England and the north? The only sources of supply for years have been the Kennebec river, in Maine, the rivers of the British provinces, and quite recently those of California; and fish brought on ice from remote regions, with impaired flavor and enhanced price, commands in the eastern markets from twenty cents to two dollars a pound, according to the season and supply. Undoubtedly the industries of the country are mainly responsible for driving away the salmon. A few years ago the beautifully clear waters of the Merrimac river, running from New Hampshire through Massachusetts and the Atlantic ocean, were filled with salmon of from nine to twelve pounds in weight; but on that river, as on other rivers, the dams and factories, and the discharges from mills, tan yards, sewers and dye houses, have forced the fish to

SEEK PURE STREAMS.

Cities, too, with their sewerage and poisonous outpourings from gas-houses, are fatal to salmon, though the shad seem to survive these evils long enough to reach their spawning grounds and return to the sea. Happily, however, means are now in operation which will go far to remedy some of these evils, and to re-stock long deserted rivers with the fish that once made these rivers their favorite resorts.

Obviously, the first means to attain the desired end is to supply "ladders," which is effectually done so that shad and salmon can ascend the dams; and next, to prevent or limit the erection on fish-bearing streams of print-works, dye-houses, gas-works, paper-mills or other establishments whose discharges may poison the water. But best of all is the process of supplying perfectly clear and unobjectionable lakes, ponds and streams with stocks of such fish as salmon, bass, trout, shad, etc., which is now effected to such an extent that, in a few years, the choicest varieties of fish will be among the cheapest as well as most desirable meats in our markets. This is done by what is variously called fish culture, fish-farming and artificial fish-breeding.

ANCIENT FISH CULTURE.

Modern fish culture is the recovery, or re-discovery of a long lost art. The Chinese, who claim the origination ages ago of every discovery — who have known silk culture, printing, engraving, gun-powder, and many other things for centuries — understood at a very ancient period the process, not only of preserving, but of artificially breeding in the remote and interior regions of their vast empire the fish so necessary to the support of an enormous population living almost entirely upon fish and rice. The ancient Romans, if they did not know how to breed fish, certainly understood the art of preserving them — that is, of protecting the spawn and young fish from the ravages of the older fish, reptiles, rats and birds, which feed upon them, and of bringing the fish to maturity for the table or for breeding. It is a question whether the Chinese or the Romans understood the process of fecundating the ova; but if they only carefully col-

lected, preserved and hatched the impregnated ova, which they did with entire success, they well knew what is really the most important part of fish culture. For when it is considered that of the thousands of eggs from a single fish of the trout and shad kind, as naturally spawned, only a very small portion comes to maturity, while the great bulk is devoured or washed away; and of what is hatched, that the young fish, especially salmon and trout, have numerous enemies, including their unnatural progenitors, which devour them by thousands — it is indeed

A VALUABLE DISCOVERY

which insures the hatching of from ninety-five per cent. of the entire number of eggs by artificial means, and by measures which insure the safety of the ova and the young. The Chinese and Romans also made the important discovery that fish readily adapt themselves to new localities; that they may be introduced in entirely new waters; that salt-water fish may be bred and brought to perfection in fresh water; that the ova, properly packed, may be transported great distances; and other vital matters pertaining to successful fish culture in our own day. Thus, at present, deserted streams are not only restocked with ova from remote rivers, but fish of different kinds are introduced in sections where they never bred naturally; pickerel have been put into ponds in Western Massachusetts; pike from the northern lakes have been brought to Connecticut; and it is confidently expected that choice foreign fish like the turbot, the Danube salmon (which has been bred in Europe to its full weight of two hundred pounds), and other varieties soon will be imported and reared in the United States. But what was known to the Romans was lost to Europe, and for centuries the Chinese, who cut themselves off from communication with the rest of the world, kept to themselves the secrets of the art of successful fish-farming.

RECOVERY OF THE ART.

There are many claimants to the honor of the re-discovery of the art. It was practiced in France in the fourteenth century. All works on pisciculture give credit to Pinchon, a monk of

Reone, for "inventing" a mode of hatching fish, similar to the modern process, but the art of artificially impregnating eggs was lost with his death. His works, important as they were, literally followed him, and it was not until the eighteenth century that the art, twice lost, was once more re-discovered. Jacobi, of Hanover, after years of experiment, made public, in 1763, his plan for fish breeding — the same in principle as that now pursued. His fish farm, established with assistance from the government, was soon able, not only to supply the home market, but to export large quantities of fish to England and France.

EXPERIMENTS AND ESTABLISHMENTS ABROAD.

Experiments began in the salmon streams of Scotland in 1833, and in 1837 a few fish were artificially hatched, and were reared to the age of two years. But for what is known now of practical and profitable pisciculture, Europe and America are indebted to two French fishermen, Remy and Gehin, living near the head waters of the Moselle. They saw and deplored the constant diminution of the trout for which they fished, and which furnished their support. Pecuniary interest led them to watch, as they did carefully for three years, the manner of natural fecundation. Their first idea was to devise means to prevent the destruction of the ova and young fish, and their investigations in this direction led to the discovery, for the third time, of the process of artificial impregnation.

Their experiments, as early as 1832, resulted in the stocking or restocking of several rivers. Five years later their enterprise and its success was known to the French government. It was shown that the fish farm of these men had restocked the Moselle with salmon, trout and other fish, and that their establishment was bountifully supplied with ova and young fish ready for transfer to other streams. All Europe became interested in the subject. Jean Jacques Coste, of the French Academy, after personal investigation, suggested the undertaking of a great government establishment. Louis Napoleon, then president of the French republic, was willing to risk thirty thousand francs in the experiment; and the result was the soon celebrated fish farm at Huningue, on the Rhine.

With a further appropriation of two hundred thousand francs, in all say fifty-six thousand dollars, it became the finest establishment of the kind in Europe. It furnished eggs and fish for the rivers of France free of cost, and further supplies, provided returns were made of the success of the first operation, besides selling to other countries and individuals sufficient quantities to make the establishment entirely self-supporting.

Within ten years of its establishment, the Huningue farm furnished in 1861, to France and to eleven other countries, nearly seventeen millions of eggs. Before the days of Remy, the French fisheries were well nigh exhausted. Huningue made fish more plentiful than ever. It stimulated the forming of similar farms all over Europe. It demonstrated that a fish crop may be raised with far more certainty than any grain crop, because it is entirely exempt from casualties by draught, insects, hail, and other evils, since with proper care nearly every egg can be hatched. Huningue has had enough confidence in this crop to send out for planting, in the past few years, an annual average of twenty million fish eggs. Elsewhere in France, there are eel-breeding establishments; and, when it is stated that a pound weight of eel fry, say eighteen hundred young eels, will increase within two years to a weight of four tons, it will be seen that an enormous amount of nutritious food is furnished at a small cost.

Following France and the methods practiced at Huningue, Germany and Switzerland have been prominent in pisciculture. The Galloway ponds in Scotland, and the Galway establishments in Ireland, supplied with salmon eggs from Scotland, are eminently prosperous, and fish farming is pursued with entire success in England and in Wales. It was early shown in Great Britain that dams are not necessarily an obstruction to fish ascending rivers to spawn. The remedy is to leave openings in the dam, with cross-pieces to prevent too great a loss of water, and through these holes the salmon find their way. Salmon ladders, on the same principle, extend down from the top of the dam, the cross-pieces enabling the fish to rest while making the ascent, and swarms of fish may be seen making their way in the spawning season up these ladders. Everywhere abroad, too, proper laws

have been made to protect fish when they are running up rivers to spawn.

THE MODE OF ARTIFICIAL BREEDING.

The methods of pisciculture are the same in all properly conducted establishments in Europe and in the United States. The purpose of pisciculture is to imitate and assist Nature. In natural spawning — to take, for instance, the trout as a representative of the salmon family, to which it belongs — in the spawning season, which is in October and November, the female ascends the stream, digs down into the gravel, and deposits her eggs. The male goes over the eggs to "milt" or impregnate them, and the milt and spawn are deposited at the same time. The female then returns and covers the eggs with gravel, and they are left to become the prey of other fish, fowl or reptiles, or perchance to hatch. The fish-farmer simply secures the eggs; sees that they are impregnated; watches their hatching; protects the young fish from their natural enemies and unnatural fathers; feeds them and brings them to maturity. This is all; there is nothing elaborate or intricate in the operation. The more important part of the business generally is to provide impregnated ova and young fish for transportation, to re-stock rivers and to supply the numerous private ponds and small establishments which now abound nearly everywhere in this country and in Europe, and to raise sufficient fish for further breeding.

The essentials for a fish farm are clear spring water, ponds for fish of different ages, and a hatching-house usually forty feet by twenty-eight. The necessary implements are a bucket, tin pans, a ladle, a small net, a syringe for feeding, nippers, and a syphon to remove dead ova. A stove to warm the house, and troughs, divided into boxes for the more convenient distribution of the eggs (and when the eggs are hatched, the young fish), complete the establishment. When the breeding fish are "ripe," that is, ready to spawn, the fish farmer partly fills a tin pan with pure spring water, over which he holds the male fish in his left hand, keeping the fish's belly under the water, while with his right hand he compresses the fish, and with his forefinger gently presses out the milt. The female is then taken in hand, and her eggs pressed

out in the same way. This process, even under the most skillful handling and the speediest return of the fish to the water, is quite exhausting, and is fatal to about three per cent. of the parent trout. Experiments have accordingly been made in this country to arrange wire screens in the ponds on which the trout may naturally spawn, when the thus impregnated ova can be removed to the house. This has been done with success in New York and elsewhere.

The eggs, after forty minutes contact with the milt, are transferred from the pan to the hatching boxes, and are evenly spread over the clean gravel bed. Over this bed flows a stream of filtered water. The boxes now require watching only with regard to the cleanliness and temperature of the water, and for the immediate removal of any dead ova, which may be known by their change of color. According to the temperature, in from forty to one hundred and twenty-five days the eggs will hatch. For forty-five days the young fish is fed by the "yolk-sack" attached to it, and which is gradually absorbed. The "troutlet" is now an inch and a half in length, and must be fed with beef liver and sweet cream, finely chopped and sifted, mixed with water, and supplied to the boxes through a small syringe, taking care to furnish enough, but not too much, as the food not eaten will foul the boxes and kill the fish. In six months the fish is three inches long, and may be fed with sifted curd. In a year the trout is six inches in length, and is removed to a pond, where he and his fellows will be safe from larger fish, to make room for fresh ova in the hatching boxes.

The fish may now be fed with finely cut liver, with curds, with grasshoppers and with small chopped fish. On this diet they thrive, and at the end of the second year will measure from ten to fifteen inches in length. At three years old a trout will weigh three-fourths of a pound; at four years, a pound and a quarter.

The foregoing describes in brief the process of fish culture as it applies to salmon and trout. With shad, the spawning season is from February to June, according to location. The spawn is put in hatching boxes, which may be placed in the river to be stocked, and in water at a temperature of seventy-six degrees the

eggs will hatch in eighty hours. The young fish subsist for three days only on the yolk-sack, and thereafter find their own food. The female shad two years old will weigh two pounds; at three years, three and one-half pounds; at four years, six pounds. The wonderful fecundity of shad, the ease with which they can be bred, and the fact that they need no subsequent feeding or care, make them peculiarly profitable for pisciculture.

Trout, according to age, will yield from two hundred to four thousand eggs; the average annual yield of salmon is estimated at ten thousand eggs; shad, according to size, yield from fifty thousand to one hundred thousand eggs. The work of the pisciculturist is to preserve this spawn, to make it productive, and so to supply unlimited quantities of the best kinds of fish for market. Already throughout the United States and Europe the entire practicability of fish farming is manifest in the increased supplies and diminished prices in the city markets.

It is a fully established fact that, properly conducted,

PISCICULTURE PAYS.

Apart from the remunerative business of the large establishments, numerous smaller and private hatching houses, which might be erected on every farm where there is a good stream of water, are abundant proof that artificial fish breeding, requiring but a small amount of capital, is very profitable. The writer of this article recently saw a fish farm, by no means one of the largest in the country, which had been in operation only four or five years, and was able, if the proprietor had been willing, to supply all the hotel tables of the near-by watering places with a constant supply of fine trout and bass. When he had secured enough three and four years old fish, he proposed to furnish these hotels, and also to erect on his own premises a dining establishment for the accommodation of patrons who might like to catch their own fish from the ponds at a dollar a pound. Two of the ponds fairly swarmed with fish weighing from three quarters of a pound to a pound and a quarter, or of good size for the table. Not long ago, a New Yorker offered the fish farmer two dollars a pound for all he could catch with a rod and line in the four year

old pond in five minutes. It was a bargain; but when he had hooked out a dozen fine fellows "in less than no time," the proprietor implored him to stay his hand, for the trout were worth more to him than the money. The dozen weighed thirteen pounds, and cost the amateur angler twenty-six dollars. The fish farmer estimated that in another season every trout in his larger ponds — and they numbered thousands — would be worth a dollar. Considering the entire cost of breeding the fish, the profit at this rate is enormous.

IN WISCONSIN.

Four or five years ago a small legislative appropriation was made, about $500, to commence the work of fish culture in this state. The next year a still farther small appropriation was made. In 1875 a full Board of Fish Commissioners was created by law, and during that and the following years ample amounts of money were paid by the state to aid the work in progress. Hatcheries were established near Madison and at Milwaukee, in which some varieties of fish were produced. At Milwaukee only lake trout and white fish were hatched, of which millions were planted along the shores of Lake Michigan, and in the waters of the interior lakes which were deep enough for the fish from the big lakes. At Madison, brook trout and California salmon have been hatched in large quantities. The trout streams which had become barren have been stocked in many parts of the state, and the increased amount of spawn to be hatched the present season will supply the rest the coming spring. The California salmon require deep and cool waters, and whether they can be made to live in Wisconsin waters still depends upon the result of the existing experiment.

In Wisconsin there are many private fish ponds. H. B. Sherman has at his Spring Brook farm, Dodge county, large numbers of artificially bred fish. N. K. Fairbanks has spent thousands of dollars in stocking Geneva Lake with fish. On the whole, fish culture in Wisconsin may be pronounced a decided success, at least as to the principal varieties, with a probability of great success in the future.

PROCEEDINGS OF THE WISCONSIN SUGAR CANE GROWERS' AND MANUFACTURERS' ASSOCIATION.

Held in the village of Palmyra, Jefferson county, Wisconsin, on the 25th and 26th days of February, 1880.

Pursuant to call, the convention convened at the Bidwell House, and was called to order by the president, O. P. Dow. L. B. Green was present as secretary.

Communications from J. H. Clewett, John M. Nash, and others, were read.

The programme of the present meeting was read, and it was moved that each article be discussed in the order that they were read.

Mr. Chatfield said that good cane can be produced from all kinds of soils.

Mr. Patchin thought that soils best adapted for corn were suitable for sorghum cane.

Mr. Cartwright would select high and light colored soils.

Mr. Clement said that in his section the best syrups are produced from high lands.

Mr. Hinkley thought that any good wheat land was well adapted for cane raising.

Mr. Grant thought that timbered soils were best adapted for the growing of cane.

Mr. Cartwright would plant on any kind of high lands.

Mr. Hanson thought that some soils were better adapted to the growth of the cane than others; would prefer a sandy soil for growing cane.

Art. 2. Mr. Grant believed in a thorough preparation of the soil; used the harrow much in pulverizing the soil.

Mr. Clement concurred in the belief of the last speaker.

Art. 7. Fertilizers. — Mr. Green was in favor of fertilizing soil the year previous to planting cane on it. Mr. Grant and Colwell were in favor of planting on clover sod.

Art. 4. Best variety of seed to be used. — Mr. Green was in favor of planting the early varieties of seed, as the Early Golden or Amber.

ART. 5. Time of planting and best method of doing it. — Mr. Clement thought it best to plant quite early, as soon as the 10th of May; uses a planter, and plants from one-half inch to one inch deep.

Mr. Dow thought that the seed should be planted before planting the corn, say between the 5th and 15th of May; believed in using the hand hoe, and when the soil is moist, planting the seed dry from one-half to one inch in depth.

Mr. Hodges had had the best success in planting with a one horse planter.

Mr. Patchin planted about the 12th of May, and used the hand hoe for that purpose; thought it the best under all circumstances; used the harrow and roller much in preparing the soil.

The following resolutions were adopted:

Resolved, That it is the belief of this meeting that the earlier varieties of cane, such as Early Amber, or Early Golden, are the best adapted for this locality, and would recommend the same for general use for southern Wisconsin.

Resolved, That it is the sense of this meeting that the time for planting cane seed, as a rule, should be as early in the month of May as the conditions will admit.

Resolved, That it is the opinion of this convention that the harvesting of cane should be before it is over ripe, but should be well advanced towards maturity, about when the seeds are most generally in a doughey state, or very soon thereafter.

Motion of Mr. Johnson, that the substance of the articles read be spread upon the journal of proceedings of this meeting, was carried.

Mr. Hanson used no chemicals in the manufacturing of syrup; claimed that the juice should be well skimmed, not allowing any scum to be boiled into the syrup.

Others concurred in the above remarks. Mr. Rayn recommended for taking scale from the evaporators, that the use of oil of vitriol, diluted by water, be used in cleaning pans; about one pint to a pailful of water.

ART. 3. Fertilizers.— Mr. Hanson would use well prepared manure, excepting hog manure, to be applied in the spring, and well worked in the soil.

Mr. Grant thought that plaster or gypsum was of little or no benefit to cane; would like the manure in some shape, but prefer it the year previous to planting cane.

Mr. Hanson said that he had planted ground to cane for eleven years in succession, and that there had been an increase of yield each year.

It was voted that the next annual meeting be held at Palmyra, on the call of the president.

The following resolution was unanimously adopted:

Resolved, That we, members of this association, are convinced that the raising and manufacturing of cane into syrup and sugar is profitable, and it has become of actual necessity to the public.

Question of Mr. Grant: "What is the best method of filtering juice before evaporation?" Several methods were spoken of, one by using a tub with a false head, that is, a second head loosely fitting the tub, to which is attached a tube reaching to the top of the tub, through which all the juice from the mill passes and rises up through straw, and runs off at the top of said tub, and is conducted to the cistern or tanks.

Art. 2 of programme was discussed, and it was demonstrated that we should not be dependent on other states for sugar and syrups, when it can be sufficiently produced at home. There was much discussion on buildings, crushers and evaporators, and many good and worthy machines were brought to the notice of the association. The batch process was most in favor, and the railway evaporator was thought to be a very desirable and convenient apparatus for making syrup.

Art. 7. At what stages of development should cane be harvested?

Mr. Grant thought that the cane should be ripe when harvested.

Art. 13. What was the prospect for a wholesale market for syrups. Much was said, and it was thought that if a sufficient amount was made, a wholesale market would be created by the erection of sugar and syrup refineries for the purpose of refining over crude syrups.

Very nice samples of syrup and sugar were exhibited by the following persons:

H. Hanson, several very excellent samples.

W. P. Clement and O. P. Dow.

H. Johnson, agent for Madison Manufacturing Co., Madison, several very fine samples.

Geo. Grant, three samples; and Jared Patchin exhibited some excellent syrups and mixed sugar.

Mr. Hanson also a sample of sugar.

Cartwright & Ward, a sample of syrup.

On motion of C. S. Cartwright, the convention proceeded to the election of officers for the ensuing year.

O. P. DOW was unanimously elected *President* for the ensuing year.

L. B. GREEN was elected *Secretary*.

H. HANSON, of Whitewater, was elected *Treasurer*.

For Vice Presidents — W. P. Clement, of Green county; W. W. Colwell, of Jefferson county; H. Johnson, of Madison, Dane county; Geo. Grant, of Rock county; E. P. Hinkley, of Waukesha county.

For Executive Committee — W. P. Clement, of Green county; Jared Patchin, of Walworth county; C. S. Cartwright, of Jefferson county.

Resolved, That the president and secretary are hereby instructed to procure improved seeds for the use and benefit of the members of this association.

Resolved, That we tender a vote of thanks to our secretary and treasurer for papers read before this convention.

The following named persons joined the association:

W. P. Clement, Monticello, Green county.
S. Hanson, Whitewater, Walworth county.
Wm. Peardon, Palmyra, Jefferson county.
W. W. Babcock, Palmyra, Jefferson county.
C. S. Cartwright, Rome, Jefferson county.
O. P. Dow, Palmyra, Jefferson county.
Jared Patchin, Lagrange, Walworth county.
S. B. Chatfield, Eagle, Waukesha county.
W. H. Colwell, Farmington, Jefferson county.

Geo. Grant, Janesville, Rock county.
H. Johnson, Madison, Dane county.
R. Williams, Palmyra, Jefferson county.
C. F. Rayn, Palmyra, Jefferson county.
L. B. Green, Hebron, Jefferson county.
E. P. Hinkley, Eagle, Waukesha county.
D. F. Melendy, Palmyra, Jefferson county.
Wm. Hodges, Fayetteville, Walworth county.
John Ward, Oak Hill, Jefferson county.

The following table gives the names of manufacturers and the number of gallons that each was reported to have manufactured in 1879:

Made.	*Gallons.*
S. B. Chatfield	2,256
S. Patchin	1,900
Wm. Babcock	2,000
C. S. Cartwright	3,000
Geo. Grant	2,200
Dow & Williams	1,600
W. P. Clement	2,100
S. Hanson	3,200
W. H. Colwell	1,800
L. B. Green	1,000
E. P. Hinkley	1,000
Plinny Potter	1,000
Wm. Hodges	1,800
John Edwards	2,000
John Moore	2,000
— Chartier	2,000

THE HORSE.

By Dr. C. L. MARTIN.

The horse is undoubtedly coeval with man. We read of him soon after the flood. The first horses brought to this country were by Columbus. They all died either at sea or soon after landing, but in 1539 De Soto, a Spaniard, landed horses in Florida. It is not my intention to trace the history of the horse from the days of Job, who describes him so beautifully, but to show that our interest in him should be enhanced by the fact, that in the world's estimate of values the horse constitutes so

considerable a proportion of what is produced by agriculturists. If this is correct, and we can have no doubt about it, should we not be encouraged to breed horses? If so, then comes these two questions, what sort to breed, and how to breed them; for at present a large class of our farmers are breeding very poor animals, which cost as much for raising as a good one, and when raised, are, comparatively speaking, worth nothing. For a few years some of you have been breeding to Norman and Clydesdale stallions, both large and good for heavy draft purposes, and for the last few years they have been profitable. They are useful in the mines and in the pineries, at the wharfs in large cities and seaports. "There has been a ready sale for them at good prices," you will say, "why not keep on and all breed this sort?" In my opinion, the country is becoming well stocked with this breed, and there will be more than will be required for the above named purposes, and prices will go down, as this class are not so generally useful as some others; they are not adapted for riding or buggy work. The people of Wisconsin require horses for all purposes—to go to church, to market, and above all, for the plow and harrow. I want horses on my farm that can walk quick and steady, for a plow will work much better, turning the ground better, when horses walk quick than when they go crawling along as if both man and horses were asleep. Some may say, "this is the horse we want, how shall we get them?" Answer: It is not difficult to do. Many of you are well prepared to breed just such horses, especially those who have been breeding Normans and Clydesdales. The English farmer breeds his splendid carriage horses from large, roomy Cleveland mares and good, large sized, thoroughbred stallions. Such carriage horses are in great demand and always will be while rich man liveth upon the earth. England cannot breed them fast enough, and for the last few years English buyers have been even in Wisconsin to find such horses, and when such a one is found, if *sound*, it is purchased at a good price. This class of horses are beginning to be required in all our large cities and will be so more and more.

Now, gentlemen, in choosing your stallions to breed this class of horses—for they will come, of course, from the sire—you must

not choose a spindling, long legged brute, with sloping quarters and light body, like a rail — no, sir; but he must be sixteen hands in height, showy, rather speedy action, long neck, head well set on, plenty of bone and muscle, large, strong tendons, good sized feet, not too large or flat, hardy and powerful, and he must be a good walker. The horse for me, either on the road or on the farm, is the one that can walk fast, and do it easily. If he can walk well, all his paces will be satisfactory. We find in England, the largest premiums offered for any trials of speed are for walking. I fear that the great importance of good walking horses is sadly overlooked by us, and I do hope that this subject will receive some attention by some member of our State Agricultural Society. I have great faith in that institution in choosing and disseminating things useful and profitable to our farmers. We have long needed blooded horses of sufficient size to improve our breed of horses. We have some at last amongst us, and you can find them if you wish to. C. T. Bradley, of Milwaukee, Mr. Bonner, of Beaver Dam, R. Richards, of Racine, Clinton Babbitt, of Beloit, C. Boyce, of Columbus, and several others, have just such horses as you require in size, and high breeding enough to be certain to transmit to their progeny their own qualities, and also those of their ancestors. Yes, gentlemen, if we are careful in our selection of mares, the sire will impart himself. I have had just such a horse at my stables for the last two years. I have been careful that he should not have mares that were vicious or cross, but those that would receive the horse kindly. The consequence is that nearly all of his colts are the father over again in miniature. I have two of his colts, yearlings, fifteen hands high, exactly like the father and exactly like each other, white near hind foot, white star, and color, although they are only half brothers. And just here let me have your particular attention, as a veterinary surgeon of more than fifty years' practice and experience. I wish to call your attention to this important point in breeding, not only in horses, but in every other animal. Nature always attempts to reproduce herself, even in the vegetable kingdom, but much stronger in the animal; and in nothing is she so persistent and determined as in transmitting disease and defects.

Then how foolish to attempt to breed from the old mare, worn out by hard usage or disease, or more frequently by both. You do this from ideas of economy; those who do it from this idea, or any other, commit an act which is at least reprehensible.

Any observing man, who will take the trouble to investigate, can see the wonderful improvement in our cattle by the cross with the imported Durham bull. Now, gentlemen, take your young mares, half or quarter breed; if they have size, weight, and are sound, the sire will do the rest, no fear. Don't fear that you will or may produce other than the very best. Do not breed undersized or ill tempered mares, no matter how good they are to work. I say that it is worse than useless to breed mares that do not take kindly to the horse. Mr. Murray, of Massachusetts, a large breeder of horses, is not far wrong when he says that favoritism and affinity was not left out of the horse structure. No violence, no forcing; if you do commit this blunder, you need not expect your foal to be much like his sire. Every farmer that makes a movement, either in his stable or stock yard, as to breeding, without well considering what he is about to do, risks a penalty for some stupid mistake. I have endeavored to impress upon your minds this simple lesson, that it is just as easy to raise a colt that at four years old is worth two hundred dollars, as one worth fifty dollars. We have some fine, large colts; let us take good care of them. Especially the first winter keep them in a warm place. With plenty of straw for bedding, they will sleep warm. Not more than two together at nights, or some will be driven off to hunger. Give them plenty of bran; it will make them grow! Do not, like your neighbor, turn them out to the straw stack all night, subjecting them to a Wisconsin winter's storm. I am certain that the saving of food is more than the cost of building shelter; I am also satisfied that the young stock of horses and cattle eat and need twice as much food, if they are cold, and without good warm stabling. Food is required to keep up the animal heat, and when cold they can scarcely eat enough to keep up the required heat. Here, gentlemen, nature steps in and *will not be denied*, but takes the fat and flesh and consumes it to make the required heat to keep the blood in circulation, and your stock becomes poorer every day.

Remember if ever either your colt, calf or pig gets stunted, that is the end of it, as far as profit is concerned. I have now said what farmers ought to do as to breeding. I will now venture a word of advice as to what they ought not to do, especially to the young farmer. We now come to what we call the thoroughbred American trotter. Your neighbor or some one near you is sure to have one, a stallion at that, that has done wonders, with a long pedigree, worth a gold mine if it had not been for some mishap. Perhaps some of it is true, and maybe not; but if undersize or unsound, if all is true, most dangerous to you. Keep away, or you may get a colt from the old mare which you think a little smarter than Tom Brown's. You begin to talk about him, and you think you have got a trotter. You begin to train him; it imperceptibly draws you from your real interests. You spend much time and money upon this trotter, neglect your business more or less for a whole year, then you are convinced that you have not got a trotter; you have spoiled your colt, and you make up your mind to sell him. Good resolution — do it, or your trotter will ruin you. Young man, the writer of this knows what he is writing about. Experience is a good school-master, and he points out to you the rock that split his ship and thousands of others. Let these wrecks be your beacon.

LIST OF OFFICERS OF AGRICULTURAL SOCIETIES FOR THE YEARS 1879-80.

COUNTIES.	NAME OF SOCIETY.	PRESIDENT.	SECRETARY.	TREASURER.
Barron	Barron County Agricultural Society	W. W. Flinn	Fred Telke	Ed. C. Coleman.
Buffalo	Buffalo County Agricultural Society	John Burgess	J. W. DeGroff	Geo. Schwæbel.
Burnett	Burnett County Agricultural Society	William Irvin	J. J. Buck	Andrew Ahlstrom.
Calumet	Calumet County Agricultural Society	J. D. Nugent	C. G. Cone	C. H. M. Peterson.
Clark	Clark County Agricultural Society	J. F. Canon	Wm. Campbell	J. F. Canon.
Columbia	Columbia County Ag'l Society	Dan'l Buchanan	Z. J. D. Swift	J. Q. Adams.
Columbia	Columbus Union Ag'l Society	James Webster	H. R. Cook	Linus Birdsey.
Columbia	Lodi Union Agricultural Society	A. A. Boyce	E. W. Gardner	Job Mills.
Crawford	Crawford County Ag'l Society	Edward Garvey	A. V. Withe	D. W. Briggs.
Dodge	Dodge County Agricultural Society	J. H. Dunham	Eli Hawks	Barbar Randall.
Door	Door County Agricultural Society	Henry B. Stephenson	R. M. Wright	George Basford.
Dunn	Dunn County Agricultural Society	A. C. Sherburne	O. L. Rickard	Rudolph Zuehlke.
Fond du Lac	Fond du Lac County Ag'l Society	A. C. Whitney	G. de Neven	F. B. Hoskins.
Fond du Lac	Ripon Agricultural Association	H. S. Town	G. S. Horner	Charles F. Wheeler.
Grant	Grant County Agricultural Society	L. M. O'Key	J. M. Kilbourn	T. A. Burr.
Grant	Boscobel Ag'l and Driving Park Ass'n	George F. Hildebrand	T. J. Brooks	Theo. Kronshage.
Green	Green County Agricultural Society	J. B. Treat	W. W. Wright	C. E. Adams.
Iowa	Iowa County Agricultural Society	M. J. Briggs	Wm. H. Prideaux	Samuel Hoskins.
Iowa	Southwestern Wisconsin Ind. Ass'n	John H. Vivian	Delos P. Beech	Thomas Priestley.
Jackson	Jackson County Agricultural Society	William T. Price	John Parsons	W. R. O'Hearn.
Jefferson	Jefferson County Ag'l Society	Walt. S. Green	D. W. Curtis	Solon Brown.
Jefferson	Central Wis. Ag'l and Mech. Ass'n	Jesse Stone	T. P. Brook	Jos. Salick.
Juneau	Juneau County Agricultural Society	Sanford Phillips	M. H. Case	M. Temple.
Kenosha	Kenosha County Ag'l Society	W. S. Maxwell.	R. F. Roberts	H. D. Bliss.
Kewaunee	Kewaunee County Ag'l Society	Lorenz Lutz	Lewis Bremer	W. Seidl.
La Crosse	La Crosse County Ag'l Society	William Van Zandt	W. I. Dudley	F. W. Stiles.
La Fayette	La Fayette County Ag'l Society	P. A. Orton	H. L. Brown	D. Schreiter.
Manitowoc	Manitowoc Co. Cent. Ag'l and M. Ass.	R. S. O'Connell	W. H. Nelson	C. Larson.
Marathon	Marathon County Ag'l Society	B. G. Plumer	Wm. Wilson	D. L. Plumer.
Marquette	Marquette County Ag'l Society	John Ellis	Wm. H. Peters	Martin G. Ellison.

Monroe	Monroe County Agricultural Society	C. A. Hunt	C. E. Boyden	T. B. Tyler.
Monroe	Eastern Monroe County Ag'l Society	L. S. Benjamin	E. L. Bolton	William Y. Baker.
Oconto	Oconto County Agricultural Society	Thomas Milledge	E. F. Paramore	C. S. McKinzie.
Outagamie	Outagamie County Ag'l & Mech. Soc'y	J. H. Carver	R. H. Randall	W. F. Montgomery.
Ozaukee	Ozaukee County Agricultural Society	Alexander M. Alling	Charles Wilke	August Koenig.
Pepin	Pepin County Agricultural Society	S. L. Plummer	Miletus Knight	George Tarrant.
Pierce	Pierce County Agricultural Society	John S. Copley	Daniel J. Dill	Geo. M. Teachout.
Portage	Portage County Agricultural Society	Thomas Pipe	H. H. Hoffman	Oliver Yorton.
Racine	Racine County Agricultural Society	H. B. Roberts	John Reynolds	F. H. Ayers.
Richland	Richland County Agricultural Soc'y	A. S. Neff	W. M. Fogo	D. L. Downs.
Rock	Rock County Agricultural Society	Seth Fisher	R. J. Richardson	N. P. Bump.
Rock	South'n Wis. & North'n Ill. Ind. Ass'n	Henry Pentland	B. A. Chapman	T. B. Bailey.
St. Croix	St. Croix County Agricultural Society	G. B. Kidder	Rufus R. Young	A. D. Richardson.
Sauk	Sauk County Agricultural Society	John M. True	F. M. Peck	J. B. Dunean.
Sauk	Baraboo Valley Agricultural Society	James Lake	A. F. Lawton	A. P. Ellinwood.
Shawano	Shawano County Agricultural Society	Henry Luecker	D. H. Pulcifer	A. M. Andrews.
Sheboygan	Sheboygan County Agricultural Soc'y	Henry Wheeler	Byron Sanford	John D. Parrish.
Sheboygan	Sheboygan Co. Ger. Ag'l & Ind. Soc'y	Carlis Wipperman	Geo. Thies	Carl Reich.
Trempealeau	Trempealeau County Agricult'l Soc'y	A. R. Carhart	E. F. Clarke	A. H. Kneeland.
Vernon	Vernon County Agricultural Society	David A. Bean	Wm. F. Terhune	Elijah Powell.
Walworth	Walworth County Agricultural Soc'y	C. R. Gibbs	W. H. Morrison	Hollis Latham.
Washington	Washington County Agricultural Soc.	L. F. Frisby	John Pick	C. H. Wilke.
Waukesha	Waukesha County Agricultural Soc'y	Isaac Gale	M. L. Butterfield	Geo. F. H. Barber.
Waupaca	Waupaca County Agricultural Society	J. C. Alden	William Woods	Andrew Gardner.
Waupaca	Waupaca Ag'l & Mech. Association	A. Gordon	C. Caldwell	D. Parish.
Waushara	Waushara County Agricultural Society	J. N. P. Bird	W. S. Munroe	S. M. Olds.
Winnebago	North'n Wis. Ag'l & Mech. Association	C. Hazen	R. D. Torrey	E. W. Viall.
Wood	Wood County Agricultural Society	Geo. R. Gardner	L. O. Schultz	Zeth Reeves.

PRINCIPAL FARM PRODUCTS GROWING IN THE SEVERAL COUNTIES OF THE STATE AT THE TIME OF MAKING ANNUAL ASSESSMENT FOR THE YEAR 1879.

COUNTIES.	APPLE ORCHARDS.		NUMBER OF ACRES.					MILCH COWS.	
	No. of Acres	No. bearing trees.	Flax.	Hops.	Tobacco.	Grasses.	Growing Timber.	Number.	Value.
Adams	118	4,095		255	7	8,695	37,702	2,995	$35,613
Ashland						167	599,040	68	1,152
Barron	58	1,020	1	23	8	1,415		1,522	24,746
Bayfield	1	50				207	800,000	30	750
Brown	240	5,728				9,191	45,597	5,110	66,437
Buffalo	306	7,091				8,681	38,610	6,085	66,320
Burnett	1	105				173	1,230	824	6,206
Calumet	697	19,164		16	1	15,356	39,169	5,959	90,489
Chippewa	124	5,301			3	6,393	820,340	2,805	34,205
Clark	106	3,838				10,747	660,256	2,641	37,291
Columbia	1,784	61,404	22	188	1	35,993	70,402	11,727	171,695
Crawford	760	25,998		1	9	4,890	136,912	4,621	54,158
Dane	3,435	85,005	112	510	3,579	57,706	106,537	20,616	291,389
Dodge	2,912	88,029	2	30	10	33,014	41,949	18,125	254,530
Door	195	4,360		2	4	5,324	30,741	1,946	24,617
Douglas						100	171,550	86	2,000
Dunn	165	6,403		26		9,381	71,591	5,284	66,287
Eau Claire	179	10,626				8,120	39,579	3,315	50,900
Fond du Lac	2,683	81,106		12		60,212	45,577	13,503	206,955
Grant	2,761	115,358	14,470	54	15	46,934	109,356	13,553	188,791
Green	1,511	50,262	432		95	46,675	49,370	15,338	248,378
Green Lake	1,208	44,510	147	10	13	14,872	25,870	4,849	68,780
Iowa	1,043	41,629	15,536	15	4	21,056	67,082	9,823	149,729
Jackson	181	6,978		22		7,756	80,830	3,684	48,942
Jefferson	2,690	125,364		395	94	18,287	31,499	16,526	256,336
Juneau	564	13,149		320	5	10,947	36,029	3,970	49,869
Kenosha	1,833	65,358	4,312			33,809	15,405	6,360	124,534
Kewaunee	94	2,517			30	16,177	40,810	4,213	51,830

La Crosse	262	6,786	.....	103	.....	15,376	33,818	4,821	69,505
La Fayette ...	1,438	49,066	25,849	5	9	28,798	35,956	9,427	160,888
Lincoln	7	142	.....	.....	1	410	1,006,240	290	3,730
Manitowoc ...	1,136	19,709	.....	3	.....	29,335	151,597	11,882	155,765
Marathon	24	1,355	.....	.....	2	4,308	518,571	2,871	32,824
Marinette. ...	21	150	.....	.....	.....	155	475,000	1,020	25,600
Marquette	503	9,586	4	30	11	4,650	49,679	3,394	42,353
Milwaukee ...	2,036	74,116	94	53	.....	19,425	14,415	19,984	120,111
Monroe	585	20,254	.....	153	.....	16,062	45,766	6,290	75,476
Oconto.....	35	2,317	.....	.....	1	2,461	.....	1,007	16,019
Outagamie ...	1,146	15,693	.....	12	.....	9,233	106,148	6,189	81,389
Ozaukee	1,199	29,973	2	.....	1	11,020	22,755	5,740	76,506
Pepin	47	2,859	.....	....	.....	2,972	16,086	1,927	20,232
Pierce	277	7,410	7	....	3	11,185	112,443	4,456	62,849
Polk	32	2,718	.....	.....	2	2,703	319,414	2,611	36,980
Portage.....	62	3,142	.....	314	9	8,933	442,910	4,106	55,515
Racine'.....	2,104	67,005	5,496	9	.....	14,972	15,940	6,771	140,696
Richland.....	707	21,729	88	66	4	19,918	157,769	5,687	70,765
Rock.....	3,555	118,272	345	3	3,476	58,013	53,331	14,560	280,661
St. Croix	170	16,821	.....	.....	... .	13,601	122,488	4,803	67,130
Sauk.....	1,653	47,030	.....	917	1	25,452	105,894	9,961	135,310
Shawano	173	1,002	.....	.....	.....	3,362	65,981	1,668	19,872
Sheboygan ...	2,023	60,491	6	20	2	37,827	54,242	18,129	283,585
Taylor	26	2	.....	.....	5	544	634,490	186	3,007
Trempealeau .	328	14,005	.....	30	5	13,071	64,527	6,643	80,222
Vernon.....	907	22,093	88	42	17	22,674	166,945	6,781	77,293
Walworth	4,247	123,477	1,561	13	4	52,547	49,996	12,378	240,342
Washington ..	2,154	66,064	.....	12	2	13	52,468	9,238	116,273
Waukesha....	3,645	111,852	43	132	3	54,303	45,440	20,639	198,777
Waupaca.....	355	10,621	6	117	2	14,956	127,000	6,186	77,304
Waushara	407	13,709	6	196	2	9,793	69,888	5,018	61,560
Winnebago...	1,551	86,896	1	20	.....	20,823	19,933	9,438	148,354
Wood	17	631	.....	11	.....	264	21,207	675	9,819
Total.....	58,481	1,901,424	68,630	4,140	7,440	1,021,437	9,891,370	410,345	$5,719,641

PRINCIPAL FARM PRODUCTS GROWING IN THE SEVERAL COUNTIES AT THE TIME OF MAKING THE ANNUAL ASSESSMENT FOR 1879.

COUNTIES.	NUMBER OF ACRES.							
	Wheat.	Corn.	Oats.	Barley.	Rye.	Potatoes.	Root crops.	Cranberries.
Adams	6,642	14,598	4,541	70	9,040	648	345	11
Ashland	20	.....	85	.....	3	55	27	.....
Barron	8,161	771	3,908	1,288	300	405	95	.....
Bayfield	1	5	5	2	.....	25	2	.....
Brown	19,213	1,882	9,923	1,706	2,570	1,724	405	.....
Buffalo	52,930	7,661	12,497	1,641	743	889	.....	.....
Burnett	2,232	144	869	76	145	118	13	2,590
Calumet	30,916	3,603	6,698	5,910	150	797	30	.....
Chippewa	30,309	4,623	20,559	1,888	372	1,116	962	.....
Clark	4,533	1,675	3,800	251	336	692	87	.....
Columbia	69,162	35,122	21,594	5,720	5,126	1,741	66	7
Crawford	23,461	14,848	11,234	1,355	1,404	934	45	.....
Dane	88,773	81,226	63,579	18,515	5,366	3,847	1,388	30
Dodge	132,563	27,659	24,843	12,336	1,424	2,806	96	22
Door	8,931	367	3,946	805	778	879	316	33
Douglas	75	5	80	.....	.....	50	5	.....
Dunn	39,396	9,235	15,396	1,748	1,258	809	38	.....
Eau Claire	38,541	7,341	12,801	762	868	665	1,146	.....
Fond du Lac	87,538	17,368	19,270	9,903	724	2,524	37	.....
Grant	38,189	82,150	56,695	2,311	3,923	2,987	20	.....
Green	10,921	55,738	36,942	619	2,939	1,331	15	.....
Green Lake	36,994	13,362	8,526	1,391	3,330	790	24	104
Iowa	37,965	42,022	33,799	2,045	1,439	1,706	45	.....
Jackson	27,688	7,461	12,995	2,306	850	619	96	7,585
Jefferson	34,052	23,788	15,051	8,868	3,893	1,738	92	1
Juneau	12,576	9,777	12,376	454	3,788	1,643	22	3,891
Kenosha	4,983	12,244	12,147	1,168	583	905	16	.....
Kewaunee	18,736	166	9,502	3,281	4,280	1,517	358	.....

La Crosse	42,578	9,488	12,189	1,687	3,048	741	74	.....
La Fayette	8,978	54,035	45,705	1,112	1,570	1,641	.....	.....
Lincoln	406	28	458	16	10	137	56	.....
Manitowoc	52,858	872	22,648	4,246	4,584	2,791	544	8
Marathon	6,517	327	5,424	1,874	419	806	180	.....
Marinette	379	58	428	30	227	168	2	50
Marquette	8,944	12,075	4,164	314	10,379	908	408	280
Milwaukee	10,998	5,935	10,606	6,788	3,136	3,582	197	.....
Monroe	36,484	12,091	16,039	1,844	2,174	1,409	67	340
Oconto	3,353	720	2,082	419	513	664	200	.....
Outagamie	33,388	7,080	10,371	1,833	875	2,842	56	40
Ozaukee	28,848	2,532	11,266	3,932	2,314	1,795	82	.....
Pepin	16,441	5,231	3,550	292	1,266	334	79	.....
Pierce	56,468	7,652	10,873	1,671	340	770	49	.....
Polk	17,106	1,163	4,524	508	218	471	236	16
Portage	18,643	12,561	8,525	804	8,610	2,531	144	360
Racine	11,352	13,189	15,566	1,900	1,383	1,473	45	.....
Richland	19,573	21,917	10,702	364	910	1,078	15	.....
Rock	24,593	73,149	51,920	23,306	7,784	2,520	73	.....
St. Croix	99,737	5,847	17,577	906	330	1,074	106	.....
Sauk	38,230	29,023	24,518	1,653	4,738	2,767	128	5
Shawano	8,800	1,221	3,435	309	795	736	544	73
Sheboygan	40,627	8,077	16,437	8,595	4,042	2,001	281	5
Taylor	149	131	217	2	14	455	187	.....
Trempealeau	71,708	13,393	19,049	2,818	1,061	886	55	1
Vernon	44,014	20,699	19,855	3,684	1,249	1,173	56	.....
Walworth	25,812	38,263	26,385	9,222	1,963	1,818	31	3
Washington	54,201	12,438	12,234	5,872	4,630	2,097	298	134
Waukesha	39,387	22,424	19,692	9,514	5,356	3,528	224	50
Waupaca	20,988	9,839	8,281	1,629	5,311	2,364	1,836	203
Waushara	15,664	16,726	9,091	268	12,666	1,350	109	857
Winnebago	52,162	12,900	12,857	1,502	755	1,474	21	.....
Wood	773	614	647	43	654	274	88	400
Total	1,775,665	905,539	870,976	185,376	148,956	82,618	12,272	17,099

ABSTRACT OF THE ASSESSMENT ROLLS OF THE SEVERAL COUNTIES IN THE STATE OF WISCONSIN, AS RETURNED TO THE SECRETARY OF STATE FOR THE YEAR 1879.

COUNTIES.	HORSES.			NEAT CATTLE.			MULES AND ASSES.		
	Number.	Value.	Av. Value.	Number.	Value.	Av. Value.	Number.	Value.	Av. Value.
Adams	2,084	$68,527	$32 88	8,097	$78,725	$9 72	133	$5,110	$38 42
Ashland	52	1,783	34 29	245	3,936	16 07	2	75	37 50
Barron	864	43,465	50 31	4,670	62,158	13 31	83	5,420	65 30
Bayfield	27	1,515	56 11	34	925	27 21	.....	.....	.....
Brown	4,624	165,386	35 77	11,401	137,287	12 04	19	670	35 26
Buffalo	5,341	274,392	51 48	15,841	139,715	8 82	278	15,637	56 25
Burnett	244	9,693	39 73	2,132	19,331	9 07	2	50	25 00
Calumet	5,097	233,353	45 78	13,994	162,136	11 59	51	2,046	40 12
Chippewa	2,834	124,574	43 96	9,039	99,021	10 95	101	4,634	45 88
Clark	1,585	57,568	36 32	8,018	102,130	12 74	85	3,380	39 76
Columbia	10,200	446,279	43 75	28,859	306,731	10 63	153	6,805	43 17
Crawford	5,438	167,261	30 76	12,683	112,705	8 89	82	3,015	36 77
Dane	19,231	840,601	43 71	52,632	556,193	10 57	275	12,935	47 04
Dodge	13,474	641,477	47 61	36,203	418,499	11 56	153	7,160	46 80
Door	1,707	66,122	38 74	5,785	68,414	11 83	51	1,985	38 92
Douglas	47	2,225	47 34	128	3,370	26 33	1	75	75 00
Dunn	4,269	203,504	47 67	14,612	152,006	10 40	314	18,147	57 79
Eau Claire	4,104	286,413	69 79	9,536	115,482	12 11	86	6,075	70 64
Fond du Lac	12,672	647,969	51 13	32,186	401,098	12 46	137	6,760	49 34
Grant	14,979	492,593	32 89	41,087	408,327	9 94	429	15,511	36 16
Green	9,243	335,303	36 28	36,300	434,668	11 97	185	7,654	41 37
Green Lake	5,008	217,678	43 47	12,081	119,248	9 87	47	1,882	40 04
Iowa	9,248	321,517	34 77	31,262	338,554	10 83	169	7,385	43 70
Jackson	3,368	171,328	50 87	9,989	114,455	11 46	117	5,821	49 75
Jefferson	8,806	353,513	40 14	29,040	350,977	12 09	153	6,940	45 36
Juneau	3,817	148,081	38 80	10,125	105,198	10 39	87	3,605	41 44
Kenosha	4,277	178,625	41 76	15,667	207,861	13 27	61	3,120	51 15
Kewaunee	3,108	124,431	40 04	11,034	134,649	12 20	36	1,415	39 31

La Crosse	5,192	246,193	47 42	11,627	119,583	10 28	134	6,788	50 66
La Fayette	9,159	327,285	35 73	30,417	372,225	12 24	343	10,310	42 43
Lincoln	234	7,293	31 17	812	8,913	10 98			
Manitowoc	8,661	367,546	42 44	22,445	250,158	11 15	37	1,340	36 22
Marathon	1,875	92,654	49 42	9,137	97,958	10 72	35	1,765	50 43
Marinette	745	26,450	35 50	1,218	15,730	12 91	98	3,3.0	34 49
Marquette	2,967	110,216	37 15	10,235	84,883	8 29	56	2,105	37 59
Milwaukee	10,551	571,784	54 19	13,917	222,448	15 98	272	13,955	51 31
Monroe	5,947	221,578	37 26	16,459	145,734	8 85	167	6,662	39 89
Oconto	1,152	47,064	40 85	4,095	54,468	13 30	10	308	30 80
Outagamie	5,950	269,287	45 26	17,353	179,576	10 35	83	4,470	53 86
Ozaukee	4,593	198,264	43 17	11,828	139,808	11 82	34	1,397	41 09
Pepin	1,706	82,632	48 44	5,226	47,214	9 03	126	6,469	51 34
Pierce	5,147	247,873	48 16	13,165	127,701	9 70	264	15,220	57 65
Polk	1,694	92,546	54 63	7,871	101,266	12 87	69	4,400	63 77
Portage	2,760	121,298	43 95	11,115	122,527	11 02	112	5,400	48 21
Price	23	1,276	55 48	169	5,522	32 67			
Racine	5,539	308,421	55 68	15,575	217,060	13 94	71	3,877	54 61
Richland	6,067	196,971	32 47	17,332	145,953	8 42	193	7,590	39 33
Rock	13,919	662,510	47 60	34,500	474,721	13 76	289	14,065	48 65
St. Croix	5,709	317,473	55 61	10,702	121,945	11 39	329	19,372	58 88
Sauk	8,699	337,593	38 81	24,804	238,831	9 63	215	9,317	43 33
Shawano	1,622	78,815	48 59	7,155	83,992	11 74	16	835	52 19
Sheboygan	9,142	408,091	44 64	33,540	431,801	12 87	126	6,255	49 64
Taylor	88	3,891	44 22	613	10,598	17 29			
Trempealeau	5,776	263,329	45 59	16,770	161,340	9 62	296	16,292	55 04
Vernon	8,045	293,288	37 08	19,858	173,240	8 72	115	4,427	38 50
Walworth	9,791	477,098	48 73	28,947	393,131	13 58	115	5,065	44 04
Washington	7,929	331,670	41 83	19,965	217,300	10 88	112	4,845	43 26
Waukesha	10,105	494,248	48 91	23,872	322,277	13 50	118	7,511	63 65
Waupaca	4,365	181,197	41 51	15,947	158,363	9 93	68	3,595	52 87
Waushara	4,120	157,509	38 23	14,404	137,489	9 55	137	4,447	32 46
Winnebago	8,283	412,249	49 77	20,850	249,513	11 97	129	6,820	52 87
Wood	988	38,859	39 53	4,466	57,591	12 90	23	1,045	45 43
Total	334,291	$14,625,167	$43 75	959,069	$10,844,658	$11 31	7,482	$352,639	$47 13

ABSTRACT OF THE ASSESSMENT ROLLS OF THE SEVERAL COUNTIES—continued.

COUNTIES.	SHEEP AND LAMBS.			SWINE.			WAGONS, CARRIAGES AND SLEIGHS.		
	Number.	Value.	Av. Val.	Number.	Value.	Av. Val.	Number.	Value.	Av. Val.
Adams	4,281	$4,384	$1 02	4,817	$6,836	$1 42	992	$12,544	$12 65
Ashland				9	19	2 11	64	1,266	19 78
Barron	1,004	1,476	1 47	1,515	3,684	2 43	899	12,859	14 30
Bayfield				3	13	4 33	22	525	23 87
Brown	6,299	7,168	1 14	5,085	7,199	1 42	3,885	56,963	14 66
Buffalo	8,274	10,550	1 28	8,341	13,120	1 57	2,551	42,024	16 47
Burnett	496	495	1 00	422	413	98	318	2,526	7 94
Calumet	8,657	13,236	1 53	7,134	10,917	1 53	3,989	54,284	13 61
Chippewa	2,600	3,831	1 47	5,073	9,051	1 78	1,954	34,497	17 65
Clark	4,409	5,296	1 20	2,282	3,877	1 70	1,720	25,076	14 58
Columbia	62,278	88,518	1 42	23,699	55,137	2 33	5,277	95,771	18 15
Crawford	8,706	10,578	1 22	15,220	19,208	1 26	1,967	31,928	11 15
Dane	69,287	117,217	1 69	57,634	135,950	2 35	9,584	194,074	20 25
Dodge	59,034	84,663	1 43	23,636	50,333	2 13	7,952	165,554	20 82
Door	2,025	2,292	1 13	2,848	4,561	1 60	1,978	24,938	12 61
Douglas	50	75	1 50				46	640	13 91
Dunn	7,499	11,008	1 47	7,334	13,617	1 86	2,922	55,130	18 87
Eau Claire	2,799	4,594	1 64	4,117	9,785	2 38	2,609	67,196	25 76
Fond du Lac	81,573	140,419	1 72	15,490	38,868	2 51	7,549	189,035	25 04
Grant	21,726	33,385	1 54	70,472	118,552	1 68	7,484	133,104	17 79
Green	33,358	51,736	1 55	30,917	56,844	1 84	4,537	78,699	17 35
Green Lake	42,864	68,942	1 61	10,176	18,383	1 81	2,537	49,856	19 65
Iowa	14,682	24,507	1 67	32,479	57,817	1 78	4,286	68,548	15 99
Jackson	4,270	5,566	1 30	4,541	9,293	2 05	1,820	38,110	20 94
Jefferson	39,150	59,346	1 52	18,770	39,307	2 09	5,333	101,429	19 02
Juneau	7,647	8,962	1 17	9,299	13,507	1 45	2,488	33,386	13 42
Kenosha	70,303	107,023	1 52	8,155	17,598	2 16	2,847	52,692	18 51
Kewaunee	5,718	5,801	1 01	5,296	8,754	1 65	3,501	44,515	12 71
La Crosse	6,983	9,119	1 31	6,705	12,274	1 83	2,488	62,898	25 28
La Fayette	15,030	33,458	2 23	35,977	87,551	2 43	4,224	78,045	18 48

Lincoln	376	345	92	396	571	1 44	75	3,629	48 39
Manitowoc	15,078	17,451	1 16	9,660	17,100	1 71	6,965	89,078	12 79
Marathon	4,524	5,470	1 21	3,135	4,551	1 45	1,843	26,132	14 18
Marinette	549	426	78	431	783	1 82	696	13,273	19 07
Marquette	18,207	20,729	1 14	8,071	11,641	1 44	1,609	20,450	12 71
Milwaukee	4,539	7,713	1 70	6,671	15,879	2 38	9,253	392,315	42 40
Monroe	13,054	16,604	1 27	12,716	18,209	1 43	3,506	48,776	13 91
Oconto	904	1,099	1 22	1,138	1,900	1 67	1,026	19,554	19 06
Outagamie	15,601	24,631	1 58	8,526	15,751	1 85	4,483	76,574	17 08
Ozaukee	4,208	8,365	1 99	4,819	10,479	2 17	3,269	53,033	16 22
Pepin	2,888	4,188	1 45	2,900	5,963	2 06	1,293	18,985	14 68
Pierce	9,987	13,686	1 37	6,373	9,338	1 47	2,908	46,978	16 15
Polk	2,602	3,863	1 48	2,341	4,845	2 07	1,504	23,319	15 50
Portage	10,378	13,042	1 26	7,050	10,984	1 56	2,207	34,726	15 73
Price				44	152	3 45	69	1,805	26 16
Racine	44,568	84,478	1 90	9,483	21,713	2 29	3,478	90,098	25 91
Richland	25,996	33,632	1 29	20,078	29,228	1 46	2,572	38,743	15 06
Rock	50,677	98,958	1 95	41,495	116,333	2 80	8,002	210,330	26 28
St. Croix	3,403	4,848	1 42	4,785	11,659	2 44	3,391	69,260	20 42
Sauk	23,179	30,620	1 32	25,608	41,195	1 61	5,255	85,446	16 26
Shawano	4,047	6,007	1 48	3,747	4,831	1 29	1,751	24,398	13 93
Sheboygan	22,016	34,002	1 54	11,193	21,024	1 88	7,597	145,615	19 17
Taylor	21	33	1 57	90	233	2 59	105	1,782	16 97
Trempealeau	10,325	13,321	1 29	6,864	15,490	2 26	2,792	47,108	16 87
Vernon	23,454	27,826	1 19	23,695	30,191	1 27	3,487	46,199	13 25
Walworth	108,455	215,886	1 99	25,133	73,230	2 91	5,177	150,783	29 13
Washington	18,528	28,891	1 56	14,454	24,830	1 72	6,118	97,867	16 00
Waukesha	80,969	150,945	1 86	20,795	46,147	2 22	7,986	174,926	21 90
Waupaca	17,243	18,935	1 10	7,853	13,389	1 70	3,810	54,944	14 42
Waushara	16,915	21,051	1 24	8,929	14,175	1 59	2,324	33,948	14 61
Winnebago	37,533	55,008	1 47	8,034	19,200	2 39	5,655	138,319	24 46
Wood	1,450	1,747	1 20	1,628	2,748	1 69	1,116	16,293	14 60
Total	1,182,676	$1,877,425	$1 59	725,581	$1,436,230	$1 98	209,145	$4,102,798	$19 62